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## CONTENTS AND DIGEST

**The Control of Communicable Diseases. Allan J. McLaughlin, M.D., Washington, D. C.....1693**

Consideration of problem with special reference to adequacy of control and probable reasons for inadequacy in certain diseases.

Discussed by Drs. Royer, Yarros, Colcord, Loughlin and McLaughlin.

**Laboratory Findings in Early and Late Syphilis: Review of One Thousand and Sixty-Four Cases. John A. Fordyce, M.D., and Isadore Rosen, M.D., New York .....1696**

Survey of serologic and spinal fluid records, and correlation of findings with clinical signs and symptoms.

**Neurosyphilis with Negative Spinal Fluid. Harry C. Solomon, M.D., Boston, and Joseph V. Klauder, M.D., Philadelphia .....1701**

Frequency of the vascular type. Syphilitic cerebral nerve palsies. Cerebral gumma. Syphilitic epilepsy. Syphilitic spastic paraplegia. Psychosis of nonparetic type. Neurosyphilis with no subjective or objective symptoms, but with strongly positive spinal fluid.

**A Study of Silver Arsphenamin in the Treatment of Syphilis, Based on Four Thousand Two Hundred and Ninety Injections. Mihran B. Parounagian, M.D., New York.....1706**

Prompt response of clinical manifestations of syphilis to treatment with silver arsphenamin.

Papers of Drs. Stillians, Brown and Pearce, Irvine, Fraser, Fordyce and Rosen, Solomon and Klauder, and Parounagian discussed by Drs. Wile, Stokes, Hazen, Simons, Moore, Ravogli, Lane, Sutton, Guy, Bechet, McGlasson, Katsainos, Goodman, Rosen, Klauder, Fordyce, Stillians, Fraser and Parounagian.

**The Management of a Diphtheria Outbreak in a Private School. E. C. Fleischner, M.D., and E. B. Shaw, M.D., San Francisco.....1714**

Difficulty of the practical application of theories. Work of Schick and of Behring. Methods adopted in a recent outbreak. Suggestions.

**Review of the Hillsdale, Mich., Typhoid Fever Epidemic of 1920. Richard M. Olin, M.D., Lansing, Mich.....1717**

Condition of water supply. Epidemiology. Bacteriology. Technic of isolation and agglutination tests.

**Toxic Protein End-Products, the Cause of So-Called Inanition Fever. De Witt H. Sherman, M.D., and Harry R. Lohnes, M.D., Buffalo.....1720**

Breast milk as a preventive and cure of this condition, with lactose or dextrin solutions as a second choice in treatment.

**Venipuncture of the Superior Longitudinal Sinus in the New-Born: Results in Two Hundred and Thirty-One Cases. J. Whitlock Gordon, M.D., Detroit .....1721**

Method most successfully employed for obtaining blood or giving intravenous medication to infants.

(Continued on next page)

SPECIAL ARTICLE

**Report of Committee on Local Anesthetics in Ophthalmic Work.....1730**

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**See Page 3**

## CONTENTS AND DIGEST—Concluded

**Phenolphthalein Dermatitis. Samuel Ayres, Jr., M.D., Los Angeles....1722**

Report of cases demonstrating the toxic properties of phenolphthalein.

**The Relief of Partial or Complete Anterior Staphyloma: Description of Operation. Arthur S. Tenner, M.D., New York .....1724**

Objects sought. Histology of a staphyloma. Tension suture. Details of procedure. Results.

**A Departure in Hospitals: The National Hospital for Speech Disorders. James Sonnett Greene, M.D., New York 1726**

Need for hospital devoted solely to treatment of various disorders of speech and voice. Work of New York clinic. Conditions observed. Necessity for establishing similar clinics elsewhere.

**CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS**

**A Case of Central Myelitis. I. S. Wechsler, M.D., New York.....1728**

**EDITORIALS**

**Athrepsia in Infants.....1736**

A condition of disturbed nutrition.

**Bacterially Tainted Money.....1737**

Negligible factor in transmission of disease.

**New Sheppard-Towner Bill Passes.1737**

Effort to remove objections.

**The Functions of the Gallbladder and the Bile Ducts.....1738**

Concentration of bile by gallbladder, dilution by ducts.

**CURRENT COMMENT**

**Prescribing Beer and Wine — Senate Adopts Conference Report.....1739**

Measure forbids use of wine and beer as medicine.

**The Pay Clinic.....1740**

Opportunity for service through cooperation with the family physician.

**Nostrums and Quackery: Volume II .....1740**

Articles published since the second edition of Volume I.

**Death Erroneously Attributed to Chlorinated Water.....1740**

Reversal of coroner's jury by necropsy findings.

**ASSOCIATION NEWS 1741**

Meeting of the Board of Trustees—Conference of Constituent State Medical Associations.

**MEDICAL NEWS 1744**

**GOVERNMENT SERVICES 1748**

**FOREIGN LETTERS 1749**

Paris—Buenos Aires—Berlin.

**MARRIAGES 1751**

**DEATHS 1752**

**PROPAGANDA FOR REFORM 1753**

Philip Rahtjen and His Discoveries.

**CORRESPONDENCE 1753**

"Anesthesia in Nose and Throat Work": Defense of Procain—The Best Method of Tying the Umbilical Cord — The Hospital and Its Necropsy Percentage—The Cornell Pay Clinic — "Mellon Issues Beer Regulations" — The Pirquet System of Nutrition.

**QUERIES AND MINOR NOTES 1756**

Automobile Antifreezing Mixtures — Classification of Expenditures for Graduate Medical Study.

**MEDICAL EDUCATION, REGISTRATION AND HOSPITAL SERVICE 1757**

Coming Examinations — West Virginia July Examination—Washington July Examination —Michigan June Examination.

**BOOK NOTICES 1758**

**MISCELLANY 1760**

A Defense of High Heels—Industrial Dermatoses Among Printers.

**MEDICOLEGAL 1761**

Roentgen-Ray Photographs as Evidence—Death from Erysipelas of Insured Physician—Rulings on Questions as to Physician Advertising.

**SOCIETY PROCEEDINGS 1761**

**CURRENT MEDICAL LITERATURE**

**American Medical Journals**

Infantile Tetany — Vital Capacity of Lungs, Exercise Tolerance and Heart Disease—Value of Dry Milk Products—Size of Infantile Palate—Congenital Goiter — Ammonia Dermatitis—Abdominal Pain in Throat Infections—Anomaly of Heart—Tuberculous Meningitis .....1762

Anticoagulating Substances in Uterine Mucosa —Nature of Alcoholic Fermentation—Rate of Diffusion of Fats and Fatty Acids—Sarcoma of Lung — Roentgen-Ray Therapy of Bone Sarcoma—Primary Sarcoma of Vertebrae... .....1763

Serum Treatment of Pneumonia—Etiology of Renal Infections—Spinal Deformity Cause of Heart Disease—Cause of Ammoniacal Diaper —Intestinal Tuberculosis in Children—Woody Thyroiditis — Standardization of Digitalis Preparations .....1764

Amino-Acid Content of Feeds—Home Grown Rations Supply Sufficient Protein — Blood Sugar in Diabetes—Effect of Heating Antiscorbutic Vitamin—Zinc and Copper Content of Brain—Bacteria Not Source of B. Vitamin —Excretion of Acetone from Lungs—Vitamin Requirements of Yeasts and Bacteria—Citric Acid Content of Milk—Ammonia Content of Blood .....1765

Influence of Parathyroidectomy on Blood Sugar Content — Tonsils as Foci of Infection—Hodgkin's Disease and Sarcoma—Comparison of Wassermann and Sachs-Georgi Tests—Staining Granules in Pituitary Cells—Hyperplasia of Parathyroids in Rickets—Sole Print Identification of New-Born.....1766

Endothermy for Malignant Disease — Floccule Inhibition Reaction in Syphilis.....1767

**Foreign Medical Journals**

Convulsions in Infants—Metatarsus Varus—Pernicious Anemia with Gastro-Intestinal Pathology—Parathyroid Gland Substance in Treatment of Varicose Ulcers.....1767

Blood Serum Treatment of Trypanosomiasis—Relief of Tension Not Drainage—Quinidin in Auricular Fibrillation — Lowered Alkali Reserve in Diarrhea—Belladonna Poisoning from Eating Rabbit—Tungsten Rays in Superficial Suppuration—Best Hats for Summer Wear .....1768

Diagnostic Value of Sugar Content of Cerebrospinal Fluid—Blood Sugar in Atrophic Infants—Paroxysmal Tachycardia—Syphilis of Heart—Retained Nitrogenous Products and Uremia — Vitamin Deficiency and Tuberculosis — High Altitude and Tuberculosis—Dropped Shoulder Early Sign of Tuberculosis—Epilepsy—Association of Diabetes with Other Diseases .....1769

Jacksonian Epilepsy in Diabetes—Acute Endocarditis from Plague—Vaccine Therapy in Bronchitis — Transient Obesity After Epidemic Encephalitis—Skin Test for Anaphylaxis—Paregoric Test for Spinal Fluid—Influence of the Thyroid on Hemorrhage—Glycemia in Exophthalmic Goiter—Quinin Test for Exophthalmic Goiter—Diabetes After Mumps —Acute Chorea—Anomalies of Thyroid Function During Pregnancy — Hysterectomy in Acute Puerperal Infection.....1770

Hysterectomy in Acute Puerperal Infection— Neurology in 1921—The Labyrinth Form of Epidemic Encephalitis—Geniculate Ganglion Syndrome—Reeducation in Cases of Ataxic Aphasia — Hexamethylenamin in Epidemic Encephalitis—Lumbar Puncture in Syphilitics —Radiotherapy in Syringomyelia.....1771

Suprarenal Insufficiency — The Pilomotor Reflex—Prognosis in Acute Ileus—Bismuth in Treatment of Gastric Ulcer—Differential Diagnosis of Fracture of Neck of Femur—Fracture of Neck of Femur—Idiosyncrasies .....1772

Convalescents' Serum in Prophylaxis of Measles—The Antimony Metabolism in Internal Leishmaniasis — Banti's Disease in Young Children—The Arsenicals in Spastic Conditions—Urea and Residual Nitrogen in the Blood in Kidney Disease—Bacteriologic Diagnosis of Diphtheria—Myasthenia Gravis—Suture of the Portal Vein — Model Sanatorium—Early Diagnosis of Renal Tuberculosis .....1773

Intracardiac Injection of Epinephrin—Rupture of Uterus at Term — Puerperal Infection—Bronchial Spirochetosis—Postoperative Irradiation — The Colon Bacillus and Kidney Stones—Abdominal Pain—Anomalies in the Lower Ribs—Prostatitis After Cystostomy—Surgical Treatment of Exophthalmic Goiter—Disintegration Zones — Habitual Dislocation of Lower Jaw—Surgical Treatment of Encephalitis — Ligation in Thrombophlebitic Pyemia .....1774

Frequency of Hutchinson Teeth in Congenital Syphilis—Barth Festschrift — Tracheotomy and Hypoglottic Laryngitis—Acquired Myxidiocy—Surgery of the Thorax—Abscess in the Brain .....1775

Recurrence After Operations for Gallstones—Operative Versus Roentgen-Ray Treatment of Exophthalmic Goiter—Uterine Myomas with Severe Anemia—Duodenal Ulcers—Fracture of the Base of the Skull—What Fractures Can Be Treated at Home?—Foot-and-Mouth Disease in Man.....1776

Accidental Heart Murmurs from Hypotonia of the Heart—Pylephlebitis—Diabetic Cataract —The Meinicke Test—Surgical Treatment of Acute Gastric or Duodenal Hemorrhage—Significance of the Vaginal Secretion in the Differential Diagnosis of Acute Appendicitis and Acute Salpingitis—Combination Radium and Roentgen Treatment of Carcinoma of the Uterus—Interspecies Transplantation of Carcinoma .....1777

Transplanting of Cancers and the Seasons—Intestinal Cancer in Relation to Schistosomiasis—Cancer in Japan—Heredity and Selection—Metastatic Cancer in Bone—Migraine and Anaphylaxis—Tuberculin Treatment of Asthma and Hay-Fever—Calcium Concentration in Spasmophilia—History of Dentistry—Motor Functioning of the Stomach After the Contrast Meal—Acetylene Poisoning....1778

**TONICS AND SEDATIVES—BOOKS RECEIVED.....Adv. Page 20**

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# The Journal of the American Medical Association

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## THE CONTROL OF COMMUNICABLE DISEASES *


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WASHINGTON, D. C.


I propose to consider the control of communicable diseases with special reference to the adequacy of our control, and the probable reasons why in certain diseases our control is inadequate.

There are three kinds of official health departments: federal, state and local. The official control of communicable diseases comes within the province of these three distinct health jurisdictions and is one of the fundamental duties of all health officers, federal, state and local. To secure adequate control, it is necessary to have a partnership of these three jurisdictions, with a clear understanding in the firm of the powers, functions and duties of each member.

Powers, functions and duties may be considered under the three heads: (1) police; (2) investigative and demonstrative, and (3) coordinative.

### POLICE POWER

Police power has been given very sparingly to federal health authorities and delegated by states in large measure to local authorities, because the ultimate application of police power to the individual citizen logically belongs to the agency with which he is in direct contact, namely, the local board of health.

It is clear that police power not specificially given by the constitution to federal agencies is reserved to the states or to the people. There is also police power, implied but not expressed in the constitution, which is inherent in the federal government in connection with the general welfare and interstate commerce clauses. This power is necessary to cover conditions not amenable to or corrigible by state police power, and its exercise cannot be a usurpation of state authority.

Congress has repeatedly given police power by statute to federal agencies to cover such conditions, but has always maintained the attitude that in health matters the state and local agencies should be utilized to the limit of their legitimate fields.

The quarantine law of 1890 gives very definite powers to the federal health authorities to prevent the introduction of cholera, yellow fever, smallpox and plague, or to prevent the spread of these diseases from one state to another, without reference to utilization of state machinery, and it provides for the promulgation of rules and regulations, with penalties for infraction.

The quarantine law of 1893, which includes all communicable diseases, provides that the Public Health Service shall cooperate with and aid state and municipal health boards in the execution and enforcement of state laws and regulations and of federal laws and regulations. It provides that where no state or local regulations exist or where these are insufficient, the Secretary of the Treasury shall make such additional rules and regulations as are necessary to prevent interstate spread of such diseases. It provides, further, that the rules and regulations promulgated by the secretary shall be enforced by state and local authorities where they will undertake to execute and enforce them; but if state or municipal health authorities fail or refuse to enforce said rules and regulations, the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary.

In order to carry out this policy of utilizing state and local health machinery in the prevention of the spread of disease, Congress has repeatedly appropriated large sums "to aid state or local boards or otherwise in preventing and suppressing communicable disease." Without invoking any of the police powers of the federal government, entirely satisfactory results can be secured by utilizing state and local police power, coordinated by the federal Public Health Service.

As the state health machinery becomes more highly organized and perfected, the need of exercise of federal police power will diminish, and the need of federal coordinative activity will increase.

The prevention of the spread of epidemic disease from one state to another may be handled in one of two ways: (1) by the present system of awaiting the outbreak of an epidemic and then attempting its suppression, or (2) by maintaining such a close check on disease prevalence that prompt and early information of undue prevalence is at once available, and that suppressive measures may be taken before actual epidemic proportions are reached.

It is manifest, therefore, that the policy of the United States Public Health Service should be to develop state health departments, especially those divisions in a state health department whose effective operation in the interest of the state itself tends to prevent the spread of disease from one state to another.

The most effective means of preventing an interstate spread of disease at the disposal of the federal government today lies in the development and utilization, in every state department of health, of strong divisions for control of communicable diseases, of water and of sewage.

* Read before the Section on Preventive Medicine and Public Health at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

### INVESTIGATIVE AND DEMONSTRATIVE FUNCTIONS

The investigative function of the Public Health Service has no limit other than that set by the amount of money which may be appropriated by Congress.

The act of 1912 authorized the service to study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage, and the pollution, directly or indirectly, of the navigable streams and lakes of the United States. Under this very broad authority, investigation of any phase of public health work may be undertaken. The act further provides for the publication of information for the use of the public. Sufficient funds should be secured from Congress to undertake and carry on such research as is necessary in order to furnish, to the health officer in the field, diagnostic, prophylactic and curative weapons for the suppression of communicable disease. The economic advantage of doing this in one hygienic laboratory rather than in forty-eight laboratories is at once apparent.

The work done under the investigative authority of the act of 1912, especially the field work, is nearly always demonstrative, and it can be utilized as public health demonstrations of all kinds.

In addition, Congress has given specific authority for demonstrations in rural sanitation, contingent upon partial support by state or local agencies.

Nothing compares in effectiveness with an actual demonstration of how work should be done in the individual communities. Here again the United States Public Health Service is limited only by the amount of money appropriated by Congress.

### COORDINATIVE FUNCTIONS

In achieving national success against any public health problem, the coordinative function of the Public Health Service is perhaps the most important function which the service exercises. Some federal coordinating agency is necessary in order to secure a synchronous attack on any disease with uniformity of method over the entire area of the United States. To secure the maximum of improvement in our national health, we must have nation-wide programs for each problem with which health officers are confronted.

The example of our venereal disease campaign serves to show what may be accomplished in other fields by the same methods.

The coordinative function of the federal Public Health Service is but the national demonstration of the function exercised by state and local health authorities over smaller areas.

In other words, public health organization—federal, state, and local—should have this relationship:

RELATIONSHIP OF PUBLIC HEALTH ORGANIZATION

| Coordinating Authority | Working Units to be Coordinated |
|---|---|
| United States Public Health Service. | State departments of health. |
| State department of health. | Local health departments. |
| Local health departments. | Individual citizens. |

The coordinating authority furnishes the program in order to secure teamwork, and endeavors to have this program carried out by all the units in the area within its jurisdiction.

Outside of the limited and definite police power given by Congress to the federal Public Health Service under the constitution, all other police power is inherent in the state, except in cases in which it has been delegated specifically by the state by charter or other legislative act to the local authorities. Under this broad power as defined by the constitution, the powers of the individual states within their own borders for regulatory, investigative or coordinative health work are limited only by the will of the people as expressed by the state legislature. As indicated above, this power has been delegated by the state legislatures in large measure to local health jurisdictions.

The coordinative function of the state is entirely independent of police power, and it resembles the federal coordinative function in being the most valuable function which the state exercises. Many states have this coordinative function highly developed, securing uniform concerted action by the local health units on the problems of communicable diseases.

The large police powers delegated to municipalities and other local health units often obscure the even more valuable coordinative function which the successful local health officer must employ. This means the securing of concerted action or "team work" by the individual citizens.

The foregoing outline of official powers, functions and duties would seem to indicate that there is ample legal authority. Experienced health officers nearly all agree that, generally speaking, there is ample legal authority if properly applied and supported by enlightened public opinion.

Police power for certain definite federal functions, such as prevention of the introduction or spread of communicable diseases, is adequate; and while police power has been given freely by states to local communities, the states retain tremendous powers for the legal prevention of the spread of disease. The tendency to overaccentuate compulsory measures is disappearing, and there is a growing tendency among health officers to secure results by education of individuals and communities.

This is logical and sensible, since a strong law may be nullified by an adverse public opinion, while substantial results are frequently secured with a weak law or without law because of the support of public opinion, expressed as respect for a fine health organization.

While it is true that the prevention of the spread of communicable disease concerns all three official health organizations, it is nevertheless, in the last analysis, a local problem.

It is the local health officer who comes into direct contact with the individual cases of the disease, and who should apply the measures to prevent its spread to other persons—in fact, a good local health organization, functioning effectively, reduces the necessity for state action to observation, keeping in touch, and lending moral support.

Adequacy of control demands effective action locally, and no activity at the state capital or at Washington can compensate for failure to apply prompt, effective measures on the spot. If the local organization is defective or nonexistent, state or federal aid may supply the temporary organization; but this should be considered as a temporary makeshift and should be used to demonstrate the necessity for a proper local organization. For these reasons, and because of the time limit on this paper, I will consider only local machinery.

Given the proper legal authority, the fundamental needs of communicable disease control come under the

heads of sufficient knowledge and proper local health organization.

Sufficient knowledge of the etiology and the modes of transmission of disease is essential to enable the formulation of effective suppressive measures. Sufficient knowledge of the biologic characteristics of a causative organism makes it possible to furnish the health officers with serums, viruses or prophylactic products for combating the disease.

If sufficient knowledge is available to furnish biologic weapons, and to make possible the formulation of effective suppressive measures, there remains only one fundamental need: proper local health organization. This means the machinery, official and unofficial, for prompt notification, at the earliest possible moment, of cases of communicable disease, and the machinery, official and unofficial, for putting into prompt effect the best suppressive measures known to science.

In considering the adequacy of control of the individual diseases, these divide themselves naturally into groups.

There is a group of diseases the prevention of which constitutes the major purpose of our federal quarantine service. They are more or less exotic, and inspire terror in the lay mind out of all proportion to their danger. In this group are Asiastic cholera, plague, yellow fever, typhus fever and leprosy.

We have sufficient knowledge to control all of these diseases, and the terror they inspire insures the support of public opinion and a feverish activity on the part of lay officials to effect their suppression. This does not mean that there is no need for further research in these diseases, but simply means that our present knowledge, backed by public opinion, makes possible what may be termed adequate control.

With the diseases which are endemic in the United States, there is quite a different story. They are of common, everyday occurrence. They inspire no terror, and public opinion is apathetic toward measures for their suppression. In some of these diseases, smallpox, typhoid and malaria, for example, we have sufficient knowledge now to effect their eradication. We have specific or biologic weapons with which to fight them, but we lack the interest and support of the individual citizen, who does not react to their presence as he would to cases of Asiatic cholera or yellow fever.

In the whole group of so-called respiratory or "sputum-borne" diseases it may be said that we lack the knowledge of the cause or the modes of transmission which would enable us to control these diseases. This is especially true of influenza and poliomyelitis. In these diseases we need specific biologic products for diagnosis, prophylaxis and treatment. We need also some practical index of susceptibility, such as the Schick test furnishes for diphtheria.

In the group of so-called communicable diseases of childhood, chiefly diphtheria, scarlet fever, measles and whooping cough, diphtheria is the only one for which we have biologic weapons which should be sufficient for its eradication. In the others, we lack definite knowledge of the cause and modes of transmission, and our practical measures for their suppression are, therefore, limited to instructions given on general principles.

Inadequate control of the communicable diseases of childhood is accentuated by certain basic defects in local health organizations. These are, chiefly, failure to coordinate and utilize unofficial volunteer agencies, and failure to develop a community spirit and to secure the hearty support of the individual citizen.

Unofficial agencies which should be the most potent auxiliaries of the health department are operating in many instances entirely independently of the officials, and often without proper knowledge of, or consideration for, their sister volunteer agencies.

The failure to secure a community spirit is related to the failure to utilize properly the unofficial agencies. If proper coordination of all volunteer auxiliaries is secured, the development of a strong community spirit is not difficult.

Once the community spirit is developed by means of real health centers, the securing of support of a large majority of the individual citizens is within reach. We have been clamoring for better reporting by physicians, and this is a justifiable demand; but even if physicians reported 100 per cent of cases seen, we should still be far from adequate control in these diseases.

A large percentage of the cases of communicable diseases of childhood are not seen by physicians, or seen so late that most of the damage is done. School inspection and the cooperation of intelligent, trained teachers will augment the number of cases brought under early control, but the great need is development of sincere public spirited support by the parents themselves.

This can never be achieved by exhibition of police power, but education and an appeal to both civic pride and individual self-respect will be ultimately successful in getting parents to report cases voluntarily.

The biggest step forward will be achieved when the parents voluntarily will isolate children and report, pending diagnosis, when the symptoms are indefinite but present a sudden deviation from normal health.

2335 Twentieth Street, N.W.

## ABSTRACT OF DISCUSSION

DR. B. FRANKLIN ROYER, Philadelphia: When you use force or go far beyond the public point of view in a community, you arouse too much opposition to succeed, except with the most frightful types of epidemics. Education must precede law enforcement. In communities in which general education is widespread—and, probably, that is best seen in New England, where each town has kept zealously its autonomous organization and carries on its educational program thoroughly—you get the best coordination of effort. In the states into which Europe pours thousands, you have a very different problem from that of New England, and a different program is required. The modern health center and the activity of the Red Cross in the extension of its peace time program will do more than other influences, perhaps, to promote campaigns of public health education both in cities and in rural districts. The well directed public health nurse will probably do more effective work than will health officers or those actively engaged in administrative work. Health authorities must act as advisers and guides to those engaged in this new scheme of public health education, first, in order that the nurses may be trained properly, secondly, that the Red Cross agency may have its function properly coordinated with official agencies, and thirdly, that their lessons may be carried out to the best advantage of the community and without friction.

In communities where state and county supervision of teachers is well coordinated, much can be done in organizing teachers in carrying on the simpler preventive methods of medicine. The health center may do a great deal to prevent sickness, by doing a little curative medicine; but first, last and most of the time its work should be educational in character. Our hope lies largely in public health education, beginning at as early a stage in life as possible.

DR. R. S. YARROS, Chicago: In the venereal disease campaign carried on by the federal government, a remarkable

piece of work has been accomplished. The U. S. Public Health Service cooperated not only with the state departments of health, but also with all well established private agencies interested in this work, with epoch-making results. The federal aid to the states not only helped start the work in many states, but also stimulated and further standardized the various phases of such work. It also served, in a way, to create wholesome competition between the states as to number of clinics, kind of clinics, and educational and law enforcement work done. As each state officer had to report monthly to the venereal disease division of the Public Health Service, he was naturally, anxious to come up to the highest standard. Having learned the value of close cooperation between the federal, state and private agencies, why not apply it to other phases of public health work?

DR. A. W. COLCORD, Clareton, Pa.: For the last twelve years I have served as president of the board of health, in a rather large industrial community, including several thousand foreigners. We are grappling with this question of the education of the people of our community to help stop communicable diseases, and to improve the health of the community in general. We have Americanization classes in which we are teaching these foreigners the English language. Next year we shall begin through the school board to send trained workers into the homes to educate mothers, first in English, and then in personal hygiene, home economics and home health. We have been for three years conducting a sanitary survey of these homes through a nurse. Every time she finds something wrong in a home she tries to correct it. Then she is getting the mothers together and health classes are organized. They get weekly talks followed by the nurse going right into their homes to see whether they are profiting by these talks. The mothers are educated about baby care and feeding. We have a clinic in each school where all subnormal children are fed. A specialist examines those children, and every physician in the town participates. We are organizing the physicians in the town to promote this health program. It can be done only by the concerted action of the physicians, the schools, the local boards of health, the state board of health and the federal government, with the cooperation of the managers of the mills. You cannot stop contagious disease with a law, a health officer and a placard. You must secure the cooperation of the people by education, persuasion, organization.

DR. J. W. LOUGHLIN, Damariscotta, Maine: In many of our own American homes we ought to teach the people how to take care of a contagious disease. There should be more cooperation between the state departments of health and the state board of education, so that the state and district health officers can go into the high schools. I don't believe in beginning with the very small children, but begin with the high school children, and teach them how the contagious diseases are contracted and how they are transmitted. Every state department of health should educate the people about spray-borne diseases and not confine itself to contagious diseases. It is in the small towns in the country that we must create interest. Once we get a health center started and people interested in their own health, it is only a short time before the local health officer is at work; the state department is not so frequently called on, the people are cooperating and better results are obtained.

DR. ALLAN J. MCLAUGHLIN, Washington, D. C.: I want to bring out two points which seem to have been emphasized in the discussion. One was our failure to utilize all the methods and knowledge which we now possess, and, second, the lack of certain instruments which explains the inadequacy of our control.

**Closing School as a Means of Controlling Epidemics.**—The successful control of epidemic diseases among schoolchildren requires: 1. Keeping the schools open, with the possible exception of sparsely settled rural districts when medical inspection cannot be obtained and where aggregation takes place only in the schools. 2. Careful daily or frequent periodic inspection of schools. 3. Careful provision for the exclusion of cases and contacts, emphasis being placed on clinical data rather than on fixed periods of exclusion. 4. Systematic home visititation. 5. Reliance on natural and physical cleansing rather than on chemical disinfectants.—*Pub. Health Rep.*, Nov. 21, 1919.

# LABORATORY FINDINGS IN EARLY AND LATE SYPHILIS

## REVIEW OF ONE THOUSAND AND SIXTY-FOUR CASES *

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An attempt has been made in this article to survey the serologic and spinal fluid records of a large number of our clinic cases and to correlate these findings with the clinical signs and symptoms presented by the patient. We hope that the data presented may have more than a statistical value in again emphasizing the importance of laboratory tests in the early diagnosis of neurosyphilis and in a more general adoption of better therapeutic procedures.

### VISCERAL AND NEUROSYPHILIS

In the treatment of any manifestation of syphilis which at a given time may be in the foreground, one must never lose sight of the fact that the disease is a constitutional one. The association of cardiovascular syphilis with syphilis of the nervous system has been called attention to over and over again. In addition, necropsy findings frequently reveal the presence of visceral syphilis with neurosyphilis. The oft-repeated statement that patients with syphilis of the central nervous system present no external manifestations of the disease is subject to many exceptions, as we not infrequently see patients with gummas of the skin or mucous membranes with nervous involvement which is discovered only at the time they present themselves for their cutaneous trouble. As a routine procedure, therefore, it is important to examine carefully every patient for cardiovascular changes as revealed by auscultation, blood pressure and roentgen-ray findings, for ocular abnormalities as shown by the ophthalmoscope and perimeter, and for changes in the central nervous system as demonstrated by a neurologic examination and lumbar puncture. Keeping in mind that we are dealing with a constitutional disease, we have applied the modern procedures not only as determinants of a cure, but also as a prophylactic measure to prevent, if possible, degenerative stigmas, or at least to limit them. To this end it has been a routine practice during the last few years to perform spinal puncture on our syphilitic patients. When possible this has been done in secondary cases between the first and second courses of arsphenamin; but in tertiary cases, unless subjective or objective findings pointing to nervous involvement were present, the procedure was deferred until after thorough treatment had been administered.

### CASES STUDIED

The series under discussion is made up of 1,064 cases grouped according to the length of infection into secondary, comprising those within the first two years,

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* This article and those by Drs. Solomon and Klauder, and Parounagian, which follow, complete the symposium on syphilis. The previous papers appeared last week.

and tertiary, including all those thereafter. The latter group, therefore, includes cases with tertiary lesions of the skin, asymptomatic or so-called latent cases, and a large group of neurosyphilitics.

Following this classification, there were 243 secondary and 821 tertiary cases. Of the secondaries, 179 had a negative spinal fluid and 64 abnormal findings. Of the tertiaries, 341 were negative in the fluid and 480 positive. The proportion of positive to negative fluids in secondary syphilis, it will be noted, is unusually high—almost 38 per cent., as against from 25 to 30 per cent. on previous calculations. This is due to the fact that quite a number of known positives were referred to us from other institutions for investigation. Similarly with the tertiaries. Here the positive fluids outnumber the negative and make it appear as though over 50 per cent. of tertiary syphilitics have a positive spinal fluid—obviously an erroneous interpretation.

TABLE 1.—AGE OF INFECTION AT TIME OF PUNCTURE IN CASES OF SECONDARY SYPHILIS WITH NEGATIVE SPINAL FLUID

| Months | Cases | Months | Cases |
|---|---|---|---|
| 2 | 5 | 14 | 4 |
| 3 | 15 | 15 | 3 |
| 4 | 14 | 16 | 3 |
| 5 | 12 | 17 | 1 |
| 6 | 17 | 18 | 4 |
| 7 | 14 | 19 | 2 |
| 8 | 7 | 20 | 4 |
| 9 | 9 | 21 | 2 |
| 10 | 7 | 22 | 4 |
| 11 | 8 | 23 | 1 |
| 12 | 14 | 24 | 25 |
| 13 | 4 | | |

This again is due to the fact that, before other clinics were doing spinal diagnostic work, frank cases of neurosyphilis were sent for a fluid test and treatment.

## ANALYSIS OF CASES

Analysis disclosed that:

There were 179 cases of secondary syphilis with negative spinal fluid; 132 of the patients were men; 47 were women; 115 had a negative and 64 a positive blood Wassermann reaction; 10 mentioned subjective complaints, such as headache, pains, nervousness, insomnia and vertigo; 17 presented slight objective findings, such as pupillary changes and minor reflex inequalities; 169 had no subjective complaints; 162 were without objective findings; 5 patients had received no

TABLE 2.—AGE OF INFECTION AT TIME OF PUNCTURE IN CASES OF SECONDARY SYPHILIS WITH POSITIVE SPINAL FLUID

| Months | Cases | Months | Cases |
|---|---|---|---|
| 2 | 1 | 14 | 3 |
| 3 | 1 | 15 | 2 |
| 4 | 1 | 17 | 2 |
| 5 | 6 | 18 | 6 |
| 6 | 2 | 19 | 2 |
| 7 | 5 | 21 | 1 |
| 8 | 3 | 22 | 1 |
| 9 | 2 | 23 | 3 |
| 10 | 5 | 24 | 8 |
| 12 | 10 | | |

treatment before puncture; 32 patients had received less than one course; 80, one course or more, and 62, two courses or more. The age of the infection at the time of puncture is given in Table 1.

In 64 cases of secondary syphilis with positive spinal fluid, 52 of the patients were men; 12 were women; 12 had a negative and 52 a positive blood Wassermann reaction; 21 had weakly positive spinal fluids; 9 showed cells and globulin only; 13 showed cells, globulin, a positive Wassermann reaction with 1.5 or 2 c.c. and a luetic curve; 43 had strongly positive spinal fluids, of whom 21 had cells, globulin, a strongly positive Wassermann reaction in amounts ranging from 0.1 to 1 c.c. and a luetic curve, and 22 had cells, globulin, a strongly positive Wassermann reaction in amounts ranging from 0.1 to 1 c.c. and a paretic curve; 34 patients mentioned subjective symptoms, as headache or pains; 43 presented objective findings referable to the deep reflexes, pupils or cranial nerves; 19 had received less than one course of treatment before puncture; 25 had received one course or more, and 20, two courses or more. The age of the infection at the time of puncture is given in Table 2.

TABLE 3.—AGE OF INFECTION AT TIME OF PUNCTURE IN CASES OF TERTIARY SYPHILIS WITH NEGATIVE SPINAL FLUID AND PRACTICALLY NEGATIVE CLINICAL FINDINGS

| Years | Cases | Years | Cases |
|---|---|---|---|
| Unknown (no history) | 103 | 17 | 4 |
| 2½ | 6 | 18 | 6 |
| 3 | 10 | 19 | 3 |
| 4 | 16 | 20 | 16 |
| 5 | 8 | 21 | 1 |
| 6 | 12 | 22 | 2 |
| 7 | 6 | 23 | 2 |
| 8 | 16 | 24 | 2 |
| 9 | 16 | 25 | 10 |
| 10 | 12 | 26 | 2 |
| 11 | 7 | 27 | 1 |
| 12 | 8 | 28 | 2 |
| 13 | 8 | 30 | 7 |
| 14 | 5 | 32 | 1 |
| 15 | 9 | 38 | 1 |
| 16 | 5 | | |

In 307 cases of tertiary syphilis with negative spinal fluid and practically negative clinical findings, 218 patients were men; 89 were women; 126 had a negative and 181 a positive blood Wassermann reaction; 54 mentioned subjective symptoms, as headache, pains and nervousness; 23 presented slight pupillary anomalies; 253 had no subjective complaints referable to the nervous system; 284 were without objective findings; 27 had received no treatment before puncture; 3 had had inunctions only; 19 had taken internal medication only; 52 had received less than one course of treatment; 99 had received one course or more, and 107, two or more courses. The age of the infection at the time of puncture is given in Table 3.

TABLE 4.—AGE OF INFECTION AT TIME OF PUNCTURE IN TERTIARY CASES WITH NEGATIVE SPINAL FLUID AND POSITIVE SIGNS

| Years | Cases | Years | Cases |
|---|---|---|---|
| Unknown (no history) | 12 | 13 | 2 |
| 3 | 2 | 15 | 1 |
| 5 | 1 | 16 | 2 |
| 6 | 2 | 20 | 2 |
| 7 | 1 | 21 | 1 |
| 10 | 2 | 25 | 1 |
| 11 | 2 | 35 | 1 |
| 12 | 1 | 40 | 1 |

In 34 tertiary cases with negative spinal fluid and positive signs or symptoms, which cases clinically were of vascular syphilis, hemiplegia, abortive tabes and old degenerative tabes, 25 patients were men; 9 were women; 16 had a negative and 18 a positive blood Wassermann reaction; 30 had subjective complaints referable to the central nervous system; 34 presented objective findings; 4 had no subjective complaints; none were without objective findings; 12 had had no treatment before puncture; 10 had had internal medication or inunctions, and 12, less than one course only of arsphenamin and mercury. The age of the infection at the time of puncture is given in Table 4.

In 480 cases of tertiary syphilis with positive spinal fluid, 386 patients were men, 94 were women; 85 had a negative and 395 a positive blood Wassermann reaction; 75 spinal

fluids were weakly positive; of these, 37 showed cells and globulin only, and 38 had cells, globulin, a positive Wassermann reaction with 1.5 or 2 c.c., of which 34 gave a luetic curve and 4 a paretic curve; 405 spinal fluids were strongly positive; 173 showed cells, globulin, a positive Wassermann reaction with amounts varying from 0.05 to 1 c.c. and a luetic curve; 228 showed cells, globulin, a positive Wassermann reaction with amounts varying from 0.05 to 1 c.c. and a paretic curve; 424 had subjective complaints referable to the central nervous system; 407 had objective findings; 56 had no subjective symptoms. 73 had no objective findings; 88 had received no treatment before puncture; 4 had had inunctions only; 56 had taken internal medication only; 170 had had less than one course; 88, one course or more, and 74 two courses or more. The age of the infection at the time of puncture is shown in Table 5.

### GROUPING OF CASES

On further analysis, these cases might be grouped somewhat as follows:

1. Early Neurosyphilis: Type 1. Patients in good physical condition, with no complaints and absent or only slight neurologic signs. The spinal fluid is mildly positive, that is, an increase of 10 or more cells, a slight excess of globulin, a positive Wasserman reaction with 1.5 or 2 c.c. and a luetic curve. These patients are usually amenable to regular syphilitic treatment, show no progress of their infection, and on repuncture several months later yield a negative fluid.

TABLE 5.—AGE OF INFECTION AT TIME OF PUNCTURE IN CASES OF TERTIARY SYPHILIS WITH POSITIVE SPINAL FLUID

| Years | Cases | Years | Cases |
|---|---|---|---|
| Unknown (no history) | 165 | 18 | 14 |
| 2½ | 4 | 19 | 8 |
| 3 | 17 | 20 | 20 |
| 4 | 15 | 21 | 1 |
| 5 | 13 | 22 | 6 |
| 6 | 14 | 23 | 8 |
| 7 | 15 | 24 | 3 |
| 8 | 19 | 25 | 8 |
| 9 | 10 | 26 | 2 |
| 10 | 25 | 27 | 2 |
| 11 | 13 | 28 | 1 |
| 12 | 20 | 30 | 10 |
| 13 | 12 | 32 | 2 |
| 14 | 13 | 33 | 1 |
| 15 | 27 | 34 | 1 |
| 16 | 10 | 35 | 2 |
| 17 | 9 | 38 | 1 |

Type 2. A. Patients with subjective symptoms, as headache, dizziness, fatigue, lack of concentration, and pains in the upper and lower extremities referred to as "rheumatic." Neurologic signs are absent or limited to slight pupillary inequality and irregularity and slight differences in the deep reflexes. The spinal fluid is usually strongly positive; cells from 25 to 300, strongly positive globulin, Wassermann reaction positive with 0.4 or 0.1 c.c. or less, and the colloidal gold reaction often of the paretic type.

B. Patients without subjective symptoms and absent or trivial objective symptoms and a strongly positive fluid similar to A. Owing to long latency, many of these patients are ignorant of their condition and lose time unless a routine puncture is made.

C. Patients presenting obtrusive signs on the part of the pupils, cranial nerves or deep reflexes. They have a strongly positive fluid, with a high cytology and a luetic or paretic curve. These cases are often very obstinate to therapy.

D. A malignant type giving the picture of an acute meningitis and sometimes terminating fatally. A cell count of 1,500 or 2,000 may be present, with a very strong globulin reaction and a Wassermann reaction with 0.1 c.c. or less and a paretic curve. These patients must be carefully treated with small doses of syphilitic remedies and the spinal canal drained several times to relieve the increased pressure before energetic treatment is instituted.

Late neurosyphilis includes the classical vascular and meningovascular forms, gumma, tabes, taboparesis and paresis. In the pure vascular type the spinal fluid is usually negative, or a few cells and a small amount of globulin may be present. In the meningovascular form the fluid may be negative, yield cells and globulin only, or be positive in all phases. In tabes the picture varies with the activity and stage of the process. In so-called abortive forms, the fluid is negative. In early, active and progressing types it is usually strongly positive, while in the late degenerative types it is frequently negative. In taboparesis the fluid is strongly positive with a paretic curve. In paresis we have found in early untreated cases a positive fluid in 100 per cent. of the cases, the cell count ranging from 20 to 250, a marked increase in globulin, strongly positive Wassermann reaction with 0.2 c.c. or less, and a paretic curve. In gumma unaccompanied by a meningitis, the fluid is usually negative. Psychoses occurring in syphilitics who do not present clinical features of tabes or paresis give a negative fluid.

### IMPORTANCE OF EARLY SUPERVISION

From our experience during the past ten years we are satisfied that the syphilitic patient's future depends on the thoroughness with which his case is supervised during the early months. He requires more than the injection, even though systematic and intensive, of arsphenamin and mercury. Although we have in the past frequently dwelt on the importance of lumbar puncture early in secondary syphilis, it is still not generally enough employed and we see only too frequently irreparable damage in the first year of the infection as a result of the failure thoroughly to investigate the patient by this means. We would therefore again emphasize the fact that an examination of the fluid gives the clinician his most valuable information regarding the infection at this time, as in the majority of cases of early syphilis with positive spinal fluid neurologic signs are either totally lacking or so insignificant that it is often a difficult question to decide whether a pathologic difference exists in the deep systemic reflexes or in the eye reactions. One must not be misled, therefore, and delay puncture until obtrusive signs appear. We have seen meningitis develop in the early months with delirium and a cell count of more than 1,000 in which the objective findings consisted of only slight impairment of the pupillary reflexes. In the basilar type in which cranial nerves are compressed by the exudate, palsies or visual disturbances give positive evidence of involvement of the central nervous system, but warning of what may take place can be elicited much earlier by the simple procedure of a puncture. For instance, in the following case we are of the opinion that an early examination would have anticipated the trouble and prevented loss of vision:

F. E., 22 years old, had an intra-urethral chancre in December, 1919. His blood was ++++ but no clinical secondaries manifested themselves. He was immediately treated

with arsphenamin and mercuric salicylate, receiving six injections of 0.5 gm. each of the former and fifteen of the latter, each 1½ grains. After a rest period of a month a similar course of treatment was given. In September, 1920, he noticed blurred vision of the left eye, and four days later on rising in the morning he was blind on that side. He now received more mercury and arsphenamin, followed by drainage, but his vision was not restored. His first spinal puncture was reported positive in all phases. When examined a short time ago we found no cells, but globulin, Wassermann reaction ++++ with 0.4 c.c., and a luetic curve.

### OPHTHALMIC EXAMINATIONS

Stress has so frequently been laid on the importance of repeated eye examinations in early syphilis that it seems superfluous to reiterate that ophthalmologic examination should be part of the routine in the care of the syphilitic patient. Dr. Mark J. Schoenberg, who so kindly cooperated with us in our examinations, has been able to detect pupillary and eye ground changes in a number of our patients in their incipiency. In one case he reported pupillary inequality with a mild optic neuritis in a woman one month after the appearance of her chancre. Her blood was ++++. In another case he observed it two months after the initial lesion. Incipient Argyll Robertson pupils with a mild optic neuritis were seen in a patient nine weeks after the primary sore. In another case he detected a left optic neuritis with irregular pupil two and a half weeks after the appearance of the secondary rash. We have noted the pupil of a patient during her course of treatment widely dilate and become fixed to light four months after her infection. The disk, which had been reported normal two weeks previously, showed an acute optic neuritis. On puncture she presented a positive fluid.

But pupillary changes may be entirely absent even when a pathologic process is going on, and this negative information may be misleading. In the case to be cited, we cannot help but feel that more information would have been gained from a puncture, and that if it had been performed from fifteen to eighteen months earlier the infection would have been controlled sooner.

H. C. has been under observation for about seven years. When he came, June 8, 1914, he was 24 years old and said he had had a chancre in January, 1914, for which his physician had prescribed internal medication for six weeks. He presented himself at the clinic because of fatigue and lack of ambition. Examination revealed only a ++++ Wassermann reaction. He was placed on arsphenamin and mercury treatment and soon felt better. While under treatment in September, 1914, he complained of blurring of the right eye. His vision was reported normal in each eye, namely, 20/15—; treatment was continued partly at the clinic and partly outside by his physician. Attacks of blurring lasting several days recurred from time to time. In December, 1916, almost two years after infection, he complained of pains in his head and failing vision for one week. He had up to this time received eighteen injections of arsphenamin and ninety of mercury. His eyes on examination showed a marked papilledema on both sides; vision: right, 20+/30—; left, 20/20—; his pupils reacted sluggishly to light, but were equal. The deep reflexes were very active and equal. The abdominal and cremasterics were present. There was no sensory or motor disturbance; no ataxia; no incoordination. A lumbar puncture revealed: cells, 210; globulin, ++; Wassermann reaction ++++ to 0.1 c.c., and a luetic curve (1233321000). The blood was still ++. Intraspinal therapy was now added to this treatment. During December, 1916, and January and February, 1917, he received fifteen injections of arsphenamin, nine intraspinal treatments, eight injections of mercury and potassium iodid internally. The vision fluctuated between 20/30++ and 20/70 in the right eye, and 20/30 ++ and 20/50 in the left. In March, 1917, it was 20/70 right and 20/50 left. A rest, sweats and diet were now ordered. In May he was again placed on treatment and given nine arsphenamin and nine mercury injections. His vision shortly returned to 20/30++ in the right eye and 20/15 in the left. In April, 1918, his vision was: right, 20/20+; left, 20/20++. The fundus examination showed the right disk congested, edema of the retina on both sides and a large floating opacity in the left vitreous. In September, 1918, vision suddenly failed in the right eye. Examination revealed 20/100 on this side and 20/20— on the left. He was now placed on inunctions for a month. Vision was then: right, 20/30; left, 20/20—. In March, 1919, it was: right, 20/50; left, 20/20—. In July, 1919, his tonsils as well as an abscessed tooth were removed. He was again placed on treatment and received eleven arsphenamin and eleven mercury injections. Sept. 3, 1920, vision of the right eye was 20/40; left, 20/15. October 13: right, 20/40+; left, 20/30+. Nov. 30, 1920: right, 20/40; left, 20/30+. His pupils in September were unequal, the left greater than the right. The left gave only a trace of reaction to light, while the right was very sluggish; both were very much reduced to accommodation. Neurologic examination was still negative.

This patient has had a total of fifty-three injections of arsphenamin, twenty intraspinal injections and 118 injections of mercury, besides inunctions and potassium iodid. His spinal fluid and his blood still give a positive Wassermann reaction.

### PUPILLARY CHANGES

Pronounced pupillary changes may often for years be the only obtrusive evidence of a serious central involvement. We are minded in this connection to relate the case of a lawyer whom one of us met several years ago in connection with a criminal case. It was noted at the time that he had distinct inequality of the pupils. He was an unusually brilliant man, and while only 31 years of age had succeeded in politics and held responsible offices at various times. His professional career continued uninterruptedly two years longer, and then he complained of nervousness and irritability. Believing this to be due to a stricture following gonorrhea which he had contracted one year previously, he consulted a urologist and received treatment for the condition. After several treatments he decided to take a vacation and started on a motor trip to the Adirondacks. On the way up he talked almost incessantly. At the hotel he was exceedingly active, flirted indiscriminately, made many new acquaintances, read aloud to the guests, discussed politics by the hour, and took his newly made friends driving. No one suspected any mental disturbance and every one thought him an exceedingly charming and entertaining companion. A week later he received a letter from his fiancée informing him of the illness of her mother. On reading this he became very hysterical, cried aloud in the lobby, and told every one he met that a frightful calamity had occurred. It was very difficult to quiet him, but after several hours he calmed down and then became depressed. In a day or two he decided to leave for home. The trip was exceedingly trying, owing to a severe electric storm *en route* which almost wrecked his car. The next day he became very noisy, screaming and shouting at the top of his voice. A diagnosis of general paresis was made from his clinical and serologic findings. A few days later he became wildly delirious and remained in this state for months. Even now, although two years have elapsed since the onset of his mental symptoms, no remission has been induced.

although he has been treated intensively. From his physician was obtained the history of a penile sore five years previously which had been pronounced a chancroid and cauterized. This presumably was his primary infection for which he had never received syphilitic treatment. Our regret, of course, was that delicacy of feeling had prevented suggesting to him over two years earlier the advisability of investigation and treatment, thus obviating the personal and family wreckage caused by the sudden precipitation and unusually severe symptoms of his disease.

### SYPHILITIC ARTERITIS

Syphilitic arteritis may show symptoms almost any time after infection, and has been reported as early as three months. According to Gowers, about one fourth of the cases occur within the first two years. A localized or diffuse meningitis is usually associated with the vascular lesions; the meningeal symptoms frequently precede the arterial, but the latter may precede the former and be independent of them. With purely vascular lesions the fluid is usually negative. The following case, occurring three years after infection, has as its special feature a maniacal attack during which a murder was committed, and after three days of intense emotional excitement a sudden motor aphasia:

An Italian, aged 28, was seen shortly after the commission of a grave criminal act for which he was held a prisoner. He had in a sudden frenzy shot his wife's father. Immediately after and during the next three days he had been able to testify before a special jury in Italian, as he spoke very little English. Then suddenly he was unable to speak and could communicate only by gesture. His hearing was not impaired, and he understood what was said to him. The physician called in was the same one who had treated him for syphilis acquired three years previously; and, recalling this infection, requested careful physical and serologic investigation. Physical and neurologic examination revealed nothing except a cardiac murmur and the motor aphasia. His deep reflexes were active and equal; there was no sensory disturbance: the pupils reacted to light and accommodation. He was exceedingly irritable and very excitable, and appeared to be suffering from severe headache. His blood was ++++. His spinal fluid revealed: cells, 22; globulin ++; Wassermann reaction negative with 2 c.c.; colloidal gold test practically negative. As it was at first believed that his mutism was the result of malingering or hysteria, he was placed under complete ether anesthesia, but he did not utter a sound either while going under or coming out of the anesthetic. He was given eight arsphenamin and ten mercury injections, but no improvement occurred. It was agreed that he was suffering from cerebral syphilis with a lesion involving the motor speech area around the fissure of Rolando, and that his criminal act was related to his disease. He was therefore removed from the prison and given institutional care. From a report received several months ago he was still unable to talk.

### SUMMARY

1. Not only is thorough investigation of every syphilitic patient early in the disease recommended, but it is as imperative as the use of the dark field in making an early diagnosis of the primary lesion.

2. Although from our analysis the percentage would seem higher, we do not believe that more than about 25 or 30 per cent. of all secondary syphilitics show infection of the central nervous system. This can in the majority of cases be determined only with certainty by a lumbar puncture, as in the early months clinical signs are often negligible; and to wait until the latter appear usually requires a longer time to bring about negative reactions.

3. Our statistics show that the incidence of nervous system involvement is much higher in men than it is in women.

4. The statement is frequently made that neurosyphilis has increased since the use of the modern antisyphilitic remedies. This increase, in our opinion, is more apparent than real, and is to be attributed to the more systematic investigation of patients and our more thorough knowledge of the disease.

5. We have no proof that arsphenamin adversely affects the optic, auditory or other cranial nerves. On the contrary, we have very definite data showing arrest of optic atrophy by the proper use of the drug.

6. In considering the problem of neurosyphilis, one should always have in mind the general infection and especially the involvement by it of the cardiovascular apparatus and the eye. A persistent negative Wassermann reaction in the blood is frequently found with positive phases in the fluid and with an active process. A patient should never be discharged as cured without the information gained by lumbar puncture. When this has been neglected, it has in many cases led to disastrous consequences and incurable conditions.

7. Pupillary anomalies and cranial nerve paralyses are often pathognomonic and are always suggestive of nervous syphilis. In papillitis and optic neuritis occurring in early syphilis, vision may be normal with only slight narrowing of the fields. The necessity for routine ophthalmologic examination must, therefore, be emphasized so that the earliest changes may be detected before irreparable damage is done to the eye.

8. The absence of clinical signs and symptoms does not exclude syphilis of the central nervous system. The classical signs and symptoms of tabes may occur with a negative blood and spinal fluid. Likewise, neurosyphilis of the vascular, gummatous and other types may present subjective and objective clinical symptoms with an excess of globulin only in the fluid.

9. The colloidal gold reaction has been employed by us for six years. We consider it of great diagnostic and prognostic value. A luetic curve enables us with almost absolute certainty to exclude paresis. A paretic curve is always present in paresis in untreated cases, but may be encountered in meningovascular syphilis and may disappear under treatment. A paretic curve is also found in some types of early neurosyphilis, and disappears as the other phases become negative.

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**Syphilis in Family.**—When one member of a family is found to be syphilitic, it is desirable to have other members of the family examined for possible syphilis. This should apply to both old and recent infections where there has been a possible chance for transmission of the disease either by contact or inheritance. It should be remembered that syphilis is syphilis when it occurs as paresis, locomotor ataxia, syphilis of the blood vessels, or other late manifestation of the disease, just the same as if the infection were recently acquired. Syphilis may be transmitted to other members of the family as an inheritance or by accident. It is for this reason that other members of the family of such a patient should be examined for evidence of syphilis.—Millard Knowlton, *Public Health Rep.* **36**:2310 (Sept. 23) 1921.

# NEUROSYPHILIS WITH NEGATIVE SPINAL FLUID*

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The subject matter of this paper deals with cases of neurosyphilis having normal findings in the cerebrospinal fluid. It is generally recognized that active visceral and skin syphilis may exist in the absence of syphilitic inhibition of hemolysis in the Wassermann test. The same is true of syphilis of the nervous system. There are a group of cases in which even in the presence of an active progressive pathologic process the tests on the spinal fluid will be essentially negative. If this is so, and it will be our endeavor to show that it is, it would follow that one must consider the clinical facts in order to make a diagnosis without depending entirely on the laboratory examination of the fluid. The latter custom has become fairly general, that is, in the absence of any evidence of inflammatory or degenerative changes, as shown by the spinal fluid tests, the patient is often considered free from active neurosyphilis.

## CLINICAL TYPES OF NEUROSYPHILIS WITH NEGATIVE SPINAL FLUID

The only type of neurosyphilis in which it is generally recognized that the spinal fluid may be negative is that in which the disease process, as far as the central nervous system is concerned, affects almost solely the blood vessels. Vascular neurosyphilis as represented by thrombosis, hemorrhage, cerebral aneurysm and arteritis obliterans are clinical diagnoses applied to this type of disorder. It must be added that in many cases in which the disorder is chiefly vascular neurosyphilis the spinal fluid does show pathologic changes. This depends on the amount of inflammatory reaction existing in addition to the vascular changes. There are, however, many other instances of neurosyphilis in which the spinal fluid may be negative. In this group, we would mention tabes, cerebral gumma, cerebral syphilis of the type causing cerebral nerve palsies, Erb's syphilitic spastic paraplegia, syphilitic epilepsy, syphilitic paranoia and syphilitic dementia.

It will be in point to indicate on what one is justified in making a diagnosis of neurosyphilis in the absence of laboratory findings of a positive nature in the fluid. There is one cardinal symptom which, when present, is strongly suggestive of a syphilitic involvement of the central nervous system. This is the Argyll Robertson pupil. Other pupillary signs, such as marked irregularity, inequality and poor reaction to light, although suggestive of neurosyphilis, are of less diagnostic value since they may be present in many nonsyphilitic conditions, as brain tumor, chronic alcoholism and arteriosclerosis. If the Argyll Robertson pupillary reaction is present, one has *prima facie* evidence of neurosyphilis. There are other combinations of symptoms, however, which, when no other explanation is available, may lead to a diagnosis of neurosyphilis. These symptoms, which include reflex disorders, speech defect, aphasia, cranial nerve palsies, fainting and convulsive attacks, are evidences of a pathologic condition of the central nervous system. When occurring in a known syphilitic who is free from any reasonable suspicion of other types of organic nervous disease, the condition may be considered syphilitic. The blood Wassermann test may or may not be positive in these instances. It is these cases which require the fine clinical examination by one who has a thorough and fundamental knowledge of neurology before the diagnosis of neurosyphilis can be made without confirmatory laboratory findings.

## CLINICAL COURSE OF NEUROSYPHILIS

Our knowledge of the life history of patients with neurosyphilis is by no means complete. Many investigations have shown that the central nervous system is very frequently involved by an active syphilitic process during the early period of generalization. The course of this process after this early efflorescence until the appearance of definite central nervous system symptoms is by no means clear. We do not know whether during the period, which may be twenty to thirty years in duration, from the time of this early involvement to the appearance of definite symptoms, the cerebrospinal fluid ordinarily shows evidence of a pathologic condition, or whether there is a long period of quiescence or slow progressive changes during which the spinal fluid is completely negative, becoming changed at a time when the activity is much increased and symptoms occur. It is the consensus of opinion that spinal fluid changes precede by many years the appearance of subjective and objective symptoms of neurosyphilis. We believe that this is probably the general rule. However, we have all had experience with patients who on one examination had negative spinal fluid reactions but who later, after a period of months or years, presented symptoms and positive findings in the fluid; so that whatever the general rule may be, the fact remains that there are cases which, despite negative findings in the fluid, over a period of months or years later show positive findings.

On the other hand, it is well known that many patients who, during the period of generalization, have symptoms of nervous system involvement and positive findings in the fluid have spontaneous disappearance of the symptoms and a return of the fluid to its normal constituents. It is probable that this spontaneous cure or remission occurs not only in the early stage of syphilis but in the later periods as well, that is, in the cases which have had active progressive symptoms of the type of tabes or nerve palsies, the symptoms of which disappear and the spinal fluid becomes negative. Much has been written of abortive and "burnt out" tabes which are cases in which the spinal fluid is normal although objective symptoms of tabes exist. McIntosh, Fildes, Head and Fearnsides[1] have asserted that pure cerebral syphilis, that is, syphilis of the cerebrum without spinal cord involve-

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1. McIntosh, J.; Fildes, P.; Head, H., and Fearnsides, E. G.: Parasyphilis of the Nervous System, Brain **36**: 17 (July) 1913.

ment, frequently if not almost invariably gives negative fluid findings or that, at any rate, the spinal fluid changes would be minimal in intensity.

One of us (H. C. S.[2]) showed that the gold reaction on fluid from various loci of the central nervous system, such as the ventricle, the cisterna magna, base of the brain, and the lumbar sac, may be quite different in a given case. Further experience has proved that this is not at all infrequent, and that it exists not only as regards the gold reaction but also the cell count, the globulin and albumin content, and the Wassermann reaction. In some instances, for example, in general paresis, the ventricle fluid may be entirely negative, whereas the lumbar fluid shows the characteristic reactions of general paresis.

Probably the best evidence that can be given concerning the presence of an active syphilitic nervous system lesion in the absence of any changes in the spinal fluid is that which was published in our paper on the provocative reactions in the cerebrospinal fluid in neurosyphilis.[3] It might be well to summarize briefly one of the cases reported in this article:

Case 1.—A man, aged 36, who had had a sudden paralysis of the right arm and leg eighteen months prior to his admission to our clinic, and had recovered in two days, on admission complained of headache, loss of memory, and a mild speech defect. The neurologic examination disclosed only increased reflexes on one side. The blood and spinal fluid gave negative Wassermann reactions, and the other spinal fluid tests were entirely negative. After a provocative injection of arsphenamin, the spinal fluid Wassermann reaction became positive with 1 and 0.8 c.c. of spinal fluid. There were 53 cells per cubic millimeter, globulin two plus, albumin two plus and the colloidal gold curve, 2443330000. With the latter spinal fluid findings and the clinical history of the case, no one would have hesitated to make a diagnosis of neurosyphilis; but prior to the treatment we were dealing with a patient who had negative spinal fluid findings, although we would insist that this patient was suffering from neurosyphilis just as much prior to the arsphenamin as subsequent to it.

### VASCULAR NEUROSYPHILIS

The most frequent form of neurosyphilis in which the spinal fluid findings are negative is, as has been stated, the vascular type. Examples of this type are seen in Cases 2, 3 and 4:

Case 2.—The patient at the time of his admission to the hospital was 33 years of age. His presenting symptom was a right-sided hemiplegia, which had occurred two and a half years prior and which had come on suddenly during sleep. He admitted a chancre seventeen years previously for which he had received practically no treatment. Examination disclosed the usual findings of a hemiplegia, namely, increased reflexes on the side of the hemiplegia. The pupils were unequal but regular, and reacted well to light and distance. Blood pressure was 98 systolic and 60 diastolic. There was a speech defect. The Wassermann reaction on the blood was strongly positive, but in the spinal fluid it was negative. There was 1 cell per cubic millimeter, no globulin, a normal amount of albumin, and a negative gold reaction. This is the common form of syphilitic hemiplegia due to thrombosis of the middle cerebral artery occurring in a young man with a history of syphilis. This is an example of neurosyphilis existing with a negative spinal fluid.

Case 3.—A woman, aged 34, had been diagnosed a syphilitic six years ago, at which time she had a strongly positive blood Wassermann reaction and gave birth to a syphilitic child. She was treated for two years, at which time the Wassermann reaction was negative. Recently she had a shock leading to a hemiplegia. The blood Wassermann reaction was negative, and the spinal fluid was entirely normal. In this instance we are dealing with a patient of known syphilitic antecedents who, despite negative serology, developed a hemiplegia at the age of 34.

Case 4.—A woman, aged 40, was brought to the Psychopathic Hospital, having been picked up by the police, who found her wandering about in an aimless fashion. She was unable to speak intelligently to the policeman. Examination showed that she was suffering from a motor aphasia, although she could understand speech and read printed words. The history showed that she had been apparently quite well until six months before, when without any warning she began to act strangely and have a series of convulsions. She recovered from this series of convulsions and remained well for three months, when suddenly while visiting a friend she suffered a paralysis of the left side of the body. Ever since this left-sided paralysis, the aphasic condition has persisted. Aside from the postapopleptic reflex disorders and the spastic phenomena, she showed irregularity of the pupils with diminished light reaction. The presence of syphilis was proved by a positive blood Wassermann reaction. There was a moderately strong gold reaction in the spinal fluid and a slight amount of globulin, 1 cell per cubic millimeter and a negative Wassermann reaction.

Cases with the clinical symptomatology of tabes but with normal cerebrospinal fluid may be discussed under three headings: (1) cases of incipient progressive type, (2) cases in which the pathologic findings in the spinal fluid have disappeared after treatment, and (3) abortive tabes. The cases of the first group, namely, those which, although they show an entirely negative spinal fluid yet continue to have symptoms, are not at all infrequent and must be considered as evidence of primary degeneration of the posterior roots and columns in the absence of an active inflammatory lesion. Cases 5 and 6 belong to this group:

Case 5.—The patient had a primary syphilitic lesion twelve years ago for which he received no treatment until seven years later, when he received one injection of arsphenamin and thirty injections into the hip. His pupils were not quite equal or circular, but reacted normally. The knee jerks and ankle jerks were entirely absent, and the patient had a progressively increasing ataxia of gait. The Wassermann reaction in the blood was positive. The spinal fluid showed 8 cells per cubic millimeter, but in all other respects was entirely negative. Despite the negative findings in the spinal fluid, the fact that the symptoms occurred in a patient with a history of syphilis and a positive blood Wassermann reaction made tabes the only possible diagnosis.

Case 6.—The patient, at the age of 47, appeared at the clinic complaining of lancinating pains in his legs and ataxia in gait. Three months previously he had a spontaneous fracture of the left femur. He had had a syphilitic infection thirteen years ago, receiving no treatment at that time. He remained apparently well until three years ago, when he suddenly developed a diplopia and pharyngeal paresthesia. He received a few injections of arsphenamin at this time and improved. A short time ago pains of a severe, shooting character appeared in his legs, he developed difficulty in his walking, the diplopia returned, and he had a spontaneous fracture of his leg which did not heal readily. The neurologic examination revealed unequal, irregular pupils, which reacted neither to light nor to distance. There was a slight speech defect and strabismus. The tendon reflexes were normal. The clinical picture was that of tabes with retention of the tendon reflexes. The blood Wassermann reaction was negative and the spinal fluid findings were entirely negative.

There are a great many cases in which mildly pathologic spinal fluid findings bridge over the gap between

2. Solomon, H. C., and Welles, E. S.: Varieties of the Gold-Sol Test (Lange) in Several Loci of the Cerebrospinal Fluid System, Study of Twenty-Eight Autopsied Cases, Boston M. & S. J. **172**: 174, 625, 629, 1915.

3. Solomon, H. C., and Klauder, J. V.: Provocative Reactions in the Cerebrospinal Fluid in Neurosyphilis, Arch. Dermat. & Syph. **2**: 679-691 (Dec.) 1920.

the negative spinal fluid cases of tabes and those with the usual type of spinal fluid findings. One of us (H. C. S.[4]) in a paper on nonconcomitance of spinal fluid tests has called attention to these spinal fluid findings.

A case of this type which was published in the paper on provocative reactions in the cerebrospinal fluid in neurosyphilis[3] may be mentioned:

CASE 7.—A woman, aged 37, who had a very definite clinical picture of tabes dorsalis, for eight years had been having sharp pains in her legs so severe that she had to give up her work. An ataxic gait had developed. She had unequal, poorly reacting pupils, absent knee jerks and ankle jerks, ataxia in gait, and a positive Romberg sign. The Wassermann reaction was positive in the blood but negative in the spinal fluid. There was a slight suggestion of globulin by the Ross-Jones test, but not enough to be called a definite reaction. There were 139 cells per cubic millimeter and an almost negative colloidal gold reaction, 0011230000. Evidence that this was syphilis of the nervous system, despite the negative spinal fluid Wassermann and almost negative globulin and gold test was shown by the production of a strongly positive spinal fluid Wassermann reaction and the paretic type of gold curve after intravenous injections of arsphenamin.

CASE 8.—A case similar to the last showing a mild change in the spinal fluid and definite evidence of syphilis of the nervous system is as follows: A man, aged 41, who came to the clinic complaining of pains in his legs which had been present for four or five years and had been increasing in severity, admitted having a chancre nineteen years previously but had had no secondary symptoms. Examination revealed irregular, fixed pupils reacting neither to light nor accommodation. Knee jerks and ankle jerks were absent. He thus presented a definite clinical picture of tabes dorsalis. The Wassermann reaction in the blood was negative. The spinal fluid showed that there were no cells, no globulin and normal albumin, but a moderately positive Wassermann reaction. In this case the only laboratory evidence of syphilis was shown by the moderately positive spinal fluid Wassermann reaction.

In addition to the cases of tabes which have negative spinal fluids without treatment or after a very small amount is administered, there are cases which, as a result of intensive arsphenamin and intraspinal injections, become negative serologically but the subjective and objective symptoms of tabes remain unchanged. Such instances are shown in Cases 9 and 10:

CASE 9.—A man, aged 49, denied knowledge of a syphilitic infection. Sixteen years previously he began having symptoms of tabes, which had progressed steadily. The presenting symptoms were impotence, sphincter disturbance, lancinating pains, ataxia in walking and in the use of the hands, and severe gastric crises. The patient was emaciated, with the pale, anemic complexion so frequent in tabes. The pupils were unequal, semidilated, and gave the Argyll Robertson reaction. The tendon reflexes were all abolished; there was a positive Romberg sign and ataxia in gait and in the use of the hands. The blood and spinal fluid were both entirely negative. The history shows that the patient had had a great many intravenous injections of arsphenamin and some fifteen intraspinal injections of arsphenamized serum. Under this treatment the laboratory tests had become quite negative, but the patient's symptoms were in no wise relieved.

CASE 10.—A baker, aged 43, had most typical attacks of gastric crises of great severity. His pupils were irregular, the right giving the Argyll Robertson reaction and the left being fixed to both light and distance. There were no other reflex disorders. His attacks of pain, nausea and vomiting had occurred at varying intervals for a period of many years. The pupillary findings and the type of gastric crises, which occurred periodically without relation to diet and ceased spontaneously, led to a diagnosis of gastric crises of tabes dorsalis. It might be added that a very careful examination excluded lead colic, ulcer, carcinoma, enteritis and the like. His blood and spinal fluid were both entirely negative. However, the patient had been a member of our clinic several years previously, at which time both blood and spinal fluid gave the usual findings of tabes dorsalis. At this time he had received intravenous injections of arsphenamin and intraspinal injections of arsphenamized serum, until his blood and spinal fluid were both negative. In spite of the negative spinal fluid findings, his symptoms had continued.

The third group, variably termed abortive, "burnt out" or imperfect tabes, includes those cases having no subjective symptoms, and a paucity of neurologic abnormalities which consists principally, if not entirely, of one or the other types of pupillary abnormality, the Argyll Robertson pupil or irregular pupils which react sluggishly. The diagnosis of tabes may not be justified from the objective symptoms, at all events in a known syphilitic those symptoms manifest a neurosyphilitic involvement. The presence of a normal spinal fluid in this class of patient, previously untreated, points to a spontaneous cessation of the underlying neurosyphilitic process. In these cases, the pupillary abnormality probably represents a "neurologic scar" of a former neuraxis involvement. The Argyll Robertson pupil may be the earliest appearing objective symptom of tabes, and may precede by many years the development of other symptoms of this disease. As previously mentioned, it is generally believed, although not definitely established, that the spinal fluid is persistently positive for many years prior to the development of frank symptoms of neurosyphilis. Therefore, in the light of present knowledge the presence of an isolated pupillary abnormality, in the type of case under discussion, together with a negative spinal fluid does not warrant the belief that this objective symptom is a forerunner of tabes or some other neurosyphilitic process. Moreover, the absence of subjective symptoms is further but not complete evidence against this assumption.

A good example of this type is seen in Case 11:

CASE 11.—H. D., a man, aged 33, when 18 years of age had a sore on the penis. He never received antisyphilitic treatment. His general health was good and he was free of any subjective complaint. The pupils were equal and irregular and were of the Argyll Robertson type. The patellar reflexes were slightly increased; otherwise the neurologic examination was negative. The blood Wassermann reaction was four plus; the spinal fluid: cells 7, globulin negative, colloidal gold test 0000000000, Wassermann test negative.

The statistics of Dreyfus[5] are of importance in the discussion of the foregoing type. According to the observation of this writer, from 35 to 40 per cent. of tertiary syphilitics with isolated pupillary abnormalities have negative spinal fluids. Indeed, in Dreyfus' series of cases the spinal fluid remained negative after provocatory arsphenamin injections.

The significance of an isolated pupillary abnormality in a syphilitic cannot be determined unless the spinal fluid is examined. The realization of this is important in the clinical examination of syphilitics.

4. Solomon, H. C.: Nonconcomitance of Spinal Fluid Tests, Arch. Neurol. & Psychiat. 3: 49-56 (Jan.) 1920.

5. Dreyfus: München. med. Wchnschr., 1912, No. 30, p. 1677; Verhandl. d. Deutsch. Congr. f. innere Med., 1912.

### SYPHILITIC CEREBRAL NERVE PALSIES

The majority of cases of cerebral nerve palsies of syphilitic origin are associated with or caused by a meningitis involving the nerve in its course from the brain to its exit in the cranium. Despite the presence of a meningitis, the spinal fluid is, in many cases, negative, either because the meningitis is too localized and gives rise to too small an amount of inflammatory product to change appreciably the content of the cerebrospinal fluid, or because, owing to the rather sluggish circulation of this fluid, the contents of the lumbar sac are not involved. Cases 12 and 13 are cases of cranial nerve palsies of syphilitic origin with a negative spinal fluid:

CASE 12.—A sudden diplopia and ptosis of the eyelid led the patient to consult us. In addition, he complained of considerable pain in the left frontal region confined to the distribution of the trigeminal nerve. Examination disclosed Argyll Robertson pupils and paresis of the left external rectus muscle of the eye and a drooping of the lid on this side. There was considerable tenderness to pin prick, and diminution of sensory discrimination of fine touch over the distribution of the first division of the left trigeminal nerve. The neurologic examination was otherwise quite negative, but the patient showed evidence of an irritation of the recurrent laryngeal nerve and a widening of the aorta, as well as a gummatous condition of the nasal septum. The patient reported that he had had a chancre thirty years ago for which he had received two years of mercurial treatment at the time but no antisyphilitic treatment since. The blood Wassermann reaction was strongly positive, but the spinal fluid was negative in all tests. Under antisyphilitic treatment the headache, ptosis and strabismus rapidly cleared up.

CASE 13.—A man, aged 28, reported that on waking one morning he saw double and his right eyelid drooped. The following months he began to feel weak and have difficulty in swallowing as well as difficulty in breathing. Examination revealed a weakness of the right external rectus muscle and ptosis of the right lid. Otherwise the examination was entirely negative, but with a history of syphilis and the positive Wassermann reaction a diagnosis of cerebral syphilis was made, even in the absence of any positive findings in the cerebrospinal fluid.

### CEREBRAL GUMMA

What has been said concerning localized meningitic lesions producing cerebral nerve palsies holds equally well for certain cases of cerebral gumma in which the spinal fluid contains no abnormality suggestive of syphilis or of any other inflammatory process. Such an instance is shown in Case 14:

CASE 14.—The patient presented a picture of increased intracranial pressure. Severe headaches, increasing dementia with confusion, disorientation and periods of excitement had developed. There was dragging of the legs, which finally led to inability to walk. The physical examination revealed areas of pigmentation on the face and sides of the neck, and some dark copper colored circular areas on the neck, suggesting syphilis. The heart was slightly enlarged. The pupils failed to react to flashlight, but reacted to prolonged sunlight. They were slightly irregular but equal, and reacted well to accommodation. There was almost complete blindness and extreme deafness. The tendon reflexes of the arms and legs were absent. The Wassermann reaction was positive in the blood. The spinal fluid was quite normal. The tumor was diagnosed as a gumma. It was localized and exposed at operation, the surgeon diagnosing gumma by its appearance. The patient died during the operation.

### SYPHILITIC EPILEPSY

Under the heading of syphilitic epilepsy we would definitely exclude those cases in which convulsions are merely incidental in the course of general paresis, epileptic attacks, and the like. We would include syphilitic patients who, having no previous evidence of epileptic tendencies and a negative family history, develop frequent characteristic epileptic convulsions. That there is such a group is probably best shown by the fact that some at least of these cases are cured of their convulsions by antisyphilitic treatment. There are two types of syphilitic epilepsy. In one type the spinal fluid presents the characteristic syphilitic reactions. Of this type we have many cases in our series, but they do not concern us in this discussion. In the other type, the spinal fluid is negative; evidence of central nervous system involvement is shown by the physical signs.

This group is represented in Cases 15 and 16:

CASE 15.—A negro man, aged 24, whose convulsions began when he was in the army, several years prior had had a syphilitic infection for which he had received only local treatment. The convulsions were severe, and in falling he often hurt himself. The physical examination revealed unequal, semidilated pupils which reacted only within the smallest limits to light, but very well to accommodation. The knee jerks and ankle jerks were absent. The blood and spinal fluids were entirely negative. A previous blood Wassermann test made at a public health hospital in the South was reported as positive. With the syphilitic history, the almost stiff pupils, the absent knee and ankle jerks, there is very little doubt that this patient had a syphilitic involvement of the nervous system, and it seems highly probable that his epileptic attacks were of syphilitic etiology despite his negative serology.

CASE 16.—A woman, aged 23, who had been married for a period of two years, dated back her syphilitic infection three years, at which time she took a small amount of medicine by mouth. Shortly after the infection she began having attacks of unconsciousness lasting for a few moments, during which she would froth at the mouth. There was no loss of sphincter control. The onset of attacks was not preceded by an aura. She sought aid at the clinic and received eight intravenous injections of arsphenamin and some mercury. At this time the blood Wassermann was positive, but the spinal fluid Wassermann was negative. One month later the blood was again positive. Attacks of unconsciousness continued, but came at longer intervals. When seen by us she was confined to bed complaining of severe headache and dizziness. The neurologic examination disclosed unequal, irregular pupils reacting sluggishly to light. The reflexes were lively and unequal on the two sides. The blood Wassermann reaction was negative. The spinal fluid was likewise negative, as was the gold reaction. There was 1 cell per cubic millimeter, and no globulin. Under active mercurial treatment and potassium iodid she rapidly improved, and at the end of the week was free of subjective symptoms.

### SYPHILITIC SPASTIC PARAPLEGIA

Erb's syphilitic spastic paraplegia, although very much rarer than tabes, is probably quite similar in its pathogenesis. The corticospinal tracts are involved in their lower portion instead of the posterior spinobulbar tracts as in tabes. Therefore, if it is true that in some cases of tabes the spinal fluid is negative, it would seem probable *a priori* that the same would be true in the latter condition. Case 17 is an instance of Erb's syphilitic spastic paraplegia in which the spinal fluid is negative:

CASE 17.—A woman, aged 36, had a marked spasticity with characteristic scissors gait. The pupils were irregular; and although both reacted to light, the left reacted far more slowly than the right and the reaction failed to hold. The arm reflexes were very active, and the knee jerks and ankle jerks were exaggerated. There was a double Babinski reflex as well as Gordon and Oppenheim reflexes, and a bilateral ankle

clonus. There was no evidence of incoordination, no Romberg sign, no disorders of sensation or disorder of the special senses, and no tremor of the tongue or hands. There was no atrophy of the muscles, ruling out amyotrophic lateral sclerosis. The blood Wassermann reaction was weakly positive, and the spinal fluid showed 14 cells per cubic millimeter, a slight gold reaction in the syphilitic zone, a small amount of globulin, and a negative spinal fluid Wassermann reaction.

There are a group of cases with definite subjective symptoms, with evidence of central nervous system syphilis as shown by the physical signs but with a negative spinal fluid. As far as their clinical picture is concerned, these cases compare with those often spoken of as "neurosyphilis asymptomatica," which have been described in detail in a recent paper [6] by one of us (J. V. K.). Case 18 illustrates this type:

CASE 18.—After an attack of pneumonia, a man continued to feel weak, and for this reason sought attention at the clinic. Examination revealed Argyll Robertson pupils which were dilated and irregular in shape. The Wassermann reaction in the blood was positive; otherwise no signs or symptoms were found. The spinal fluid tests were all quite normal. The patient received antisyphilitic treatment for more than a year, after which time his blood Wassermann reaction became entirely negative, but the Argyll Robertson pupils remained as almost the sole discernable residual of his syphilitic infection. However, the examination of the spinal fluid at this later date showed a gold reaction of an abortive paretic type, 5553000000.

### SYPHILITIC PSYCHOSES (NONPARETIC TYPE)

There remains a group of cases mentioned by Kraepelin, Nonne, Pilcz, Plaut and others of the German school which these authors described as syphilitic paranoia, syphilitic dementia, and by other euphonious terms. Psychotic manifestations occurred in syphilitic patients who, prior to their infection, were entirely free of any disorder. A negative spinal fluid is a characteristic finding in these cases. The exact relation of these cases to syphilis is by no means apparent; and while we have numerous instances of this type which we might add here, the fact that the conditions are so uncertain leads us to leave them out of consideration. There are, however, some cases in which mental peculiarities occur in syphilitics who show definite evidence of central nervous system syphilis, such as the Argyll Robertson pupil, and who have negative spinal fluids as illustrated by Case 19:

CASE 19.—A man, aged 31, when seen at the clinic, told of a syphilitic infection seven years prior, claiming to have infected his wife, who was in fact undergoing antisyphilitic treatment. He complained of worry, depression, hypersensitivity to noises, thoughts of suicide, and amnesia. He had had excited attacks in which he became dangerous, and because of this it was necessary to commit him to an institution. The left pupil gave a typical Argyll Robertson reaction, and the right pupil showed a very mild contraction to light stimulus. There was a moderate tremor of the hands and tongue, and the patient showed a distinct Romberg sign, although the knee and ankle jerks were normal. The blood Wassermann reaction was positive, but the spinal fluid was quite normal in all respects.

### NEUROSYPHILIS WITH NO SUBJECTIVE OR OBJECTIVE SYMPTOMS, BUT WITH STRONGLY POSITIVE SPINAL FLUID

In contrast to the foregoing cases with active signs and symptoms of neurosyphilis and negative spinal fluids, there is a group in which, despite the absence of signs or symptoms of a neuraxis involvement, the spinal fluid tests are strongly positive. These cases occur in all periods of the disease. One group in the late stage of syphilis with spinal fluid findings similar to those found in general paresis was reported by one of us (H. C. S. in conjunction with Dr. E. E. Southard [7]). We will merely cite two cases of this large group, one (Case 20) occurring early in syphilis and one (Case 21) occurring late:

CASE 20.—A woman, aged 20, who had led a fairly riotous life, was under the charge of the girls' parole department. Because of their inability to keep her on the straight and narrow path, she was sent to the Psycopathic Hospital for examination. The routine Wassermann examination was reported positive. She gave no history of primary or secondary symptoms, and, as indicated above, her physical examination, including the neurologic, was essentially negative. As a matter of routine in a syphilitic case, a lumbar puncture was performed, which disclosed a strongly positive Wassermann reaction; globulin 1 plus, albumin 1 plus, 132 cells per cubic millimeter, colloidal gold reaction, 4443333221. Sixteen injections of arsphenamin in the following four months were given, and at the end of this time she had negative blood and negative spinal fluid Wassermann reactions; globulin and albumin were still reported as 1 plus; there was 1 cell per cubic millimeter and the colloidal gold reaction was 4332221100. Treatment was continued and eleven more injections of arsphenamin were given in the following nine months. After a rest of seven months, another lumbar puncture was performed which was entirely negative, as was the blood reaction.

CASE 21.—A woman, aged 27, who came to the clinic for examination because her husband had general paresis, had no symptoms, was in the best of health, and came only at the solicitation of our clinic in following its routine of examining the mates of all syphilitic patients. Physical examination was as free from significant findings as was the symptomatology of the patient. The blood Wassermann reaction was strongly positive, whereupon the spinal fluid examination was made and disclosed a strongly positive Wassermann reaction, globulin 1 plus, increased albumin, 34 cells per cubic millimeter, and a weak paretic gold curve, 5522211100.

Our conviction, which we hope we have shown is based on facts, is that there are many instances of active cerebral syphilis and even spinal syphilis in which the spinal fluid reactions are negative but yet the patients are actively syphilitic and react favorably to antisyphilitic treatment. The following two cases can be presented as final evidence in our chain that negative spinal fluids do not in any respect indicate the lack of activity of syphilis in the nervous system:

CASE 22.—This case seems to give conclusive proof of the activity of a neurosyphilitic process, although the cerebrospinal fluid is negative. A man, aged 41, gave a history of a lip chancre fourteen years previously. A month before his admission to the hospital he had a number of unconscious spells, one of which was associated with a transient left hemiplegia. In a few days he became excited, broke windows, and ran down the street in a markedly confused condition. On his arrival at the hospital he was very excited and confused. The pupils were equal, regular and reacted to light and distance. There was a slight ptosis of the left lid. The tendon reflexes were all present and equal on the two sides; there were no abnormal reflexes. The blood Wassermann reaction was positive, as was the spinal fluid. There were 87 cells per cubic millimeter, two plus globulin, two plus albumin, gold test, 0012210000. The patient received quite a number of intravenous injections of arsphenamin, and there was a great clinical improvement; the spinal fluid became negative. He was sent out from the hospital and after a few weeks had a sudden convulsion, was returned to the hospital and died

6. Klauder, J. V.: Early Neurosyphilis Asymptomatica, with Report of Observations and Cases, Am. J. Syph. 3: 559-586 (Oct.) 1919.

7. Southard, E. E., and Solomon, H. C.: Latent Neurosyphilis and the Question of General Paresis sine Paresi, Boston M. & S. J. 174: 8-15, 1915.

in a few days. Although the spinal fluid was negative, the necropsy showed that he had a meningitis with lymphocytic infiltration of the pia.

Case 23.—A man, aged 46, who came under observation in February, 1916, had the mental and physical signs of general paresis, with mental deterioration, speech defect and irregular pupils, with very slight reaction to light, but good reaction to accommodation. The knee jerks and ankle jerks were absent, and he was unsteady in the Romberg position. The blood and spinal fluid were strongly positive, the latter giving the characteristic reactions of paresis. Under treatment the patient made a marked improvement, and he was allowed to return to his work. At the end of two years the spinal fluid was negative in all regards. A few months later the patient had a spell of confusion, following which the spinal fluid again showed the typical reactions of general paresis. Treatment was again pushed intensively, and the patient made a second clinical remission with a return of the spinal fluid to its normal condition. He remained under treatment, but again had a spell of confusion, and on return to the hospital his spinal fluid was again strongly positive. We had here, we believe, complete and thorough evidence of the continuation of the syphilitic process in the central nervous system despite a negative spinal fluid.

Nonne[8] gives a long discussion of neurosyphilis in the absence of a pathologic spinal fluid. He gives the following group, of five types of cases for consideration:

1. The fluid is, from the beginning, normal. (This he calls a rudimentary process.)
2. The fluid, in the beginning pathologic, becomes normal. This is a healed syphilitic disease of the central nervous system.
3. The fluid shows improvement over its former condition but is still not entirely normal. In this condition the disease process is improved.
4. The fluid is still pathologic as it was earlier, but the clinical picture has remained stationary.
5. The fluid remains pathologic as it was formerly, with an increase in the disease process.

In addition to these conditions or groups as given by Nonne, we would conclude from the case material in our possession, as illustrated by the foregoing case histories, that in the absence of any pathologic changes or very mild ones, in the spinal fluid, neurosyphilis may be active and progressive. We, of course, agree entirely that in many instances in which the evidence of a syphilitic nervous involvement is shown by the physical signs and the fluid is normal, these signs present evidence of a former activity which has been halted.

The matter of the treatment of cases showing signs representing nervous system disease but in which the spinal fluid is entirely negative presents a matter for the finest clinical discrimination. If one is dealing with a "burnt out" process, one in which there is no evidence of an active neurosyphilitic process, there is less reason to consider antisyphilitic treatment. These cases will probably fit the old definition of parasyphilis. They manifest tissue damage as a result of syphilis but with no apparent spirochetal activity; hence antisyphilitic treatment is of questionable value. However, it is not definitely known whether these cases harbor living spirochetes, even though laboratory tests of the blood and spinal fluid are negative and the apparent pathologic processes are of a residual character. Many of the vascular cases, such as Case 3, are excellent illustrations of this type. This woman, who, at the time of the hemiplegia, showed no evidence of an active syphilitic process, probably had her cerebral vessels affected during the period of activity, which resulted in a sclerotic condition of the vessels, which subsequently ruptured. On the other hand, the cases in which the syphilitic process is active in the central nervous system despite the negative spinal fluid require and are entitled to active antisyphilitic remedies. Just what type of antisyphilitic remedy should be used is again a matter of clinical judgment, and the ideas concerning this would vary with different men who have predilections for different forms of treatment. But on this debatable ground we shall not enter.

8. Nonne, M.: Syphilis und Nervensystem, Ed. 3, Berlin, p. 296.

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# A STUDY OF SILVER ARSPHENAMIN IN THE TREATMENT OF SYPHILIS

## BASED ON FOUR THOUSAND TWO HUNDRED AND NINETY INJECTIONS*

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The importance of the combination of arsphenamin and metal salts was first made public by Ehrlich, Aug. 8, 1913, at the International Congress of Medicine in London. A number of such preparations of arsphenamin and metal compounds were tried in the treatment of trypanosomíasis. The use of this class of compounds was founded on well-established experimental and clinical investigations. The doses were small and the results gratifying. Early in 1918, Kolle, the successor of Ehrlich at the Speyer House, had completed the biologic examination of silver arsphenamin and it was distributed for clinical study. As pointed out by Kolle and Ritz, silver and its compounds exert a decided antisyphilitic influence. Silver arsphenamin takes an exceptional position among the heavy metal combinations which are concerned with therapeutics. Silver in itself has remarkable oligodynamic powers, and when combined chemically with arsphenamin yields a product with a decreased toxicity and a higher therapeutic index.

Silver arsphenamin is arsphenamin treated with silver salts in such a manner that the silver is relatively firmly fixed in the molecule; after subsequent purification the reaction product is correctly alkalized so that the final product is capable of ready solution in water. Although, for brevity termed silver arsphenamin, it is in reality the salt, sodium silver arsphenamin.[1] The preparation contains about 20 per cent. arsenic and 14 per cent. silver. It is a brown powder which easily dissolves, without shaking, in distilled water, giving a dark brown solution. If the product has deteriorated, an opalescent and cloudy solution is formed, and the solution should be discarded, as it is dangerous to use. In case of decomposed products, a precipitate is formed when it is placed in water.[2]

* From the Department of Syphilology of Bellevue Hospital.
* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. A description of silver arsphenamin appeared in the New and Nonofficial Remedies department of The Journal, May 7, 1921, p. 1312.

2. The structural formula is still under discussion by scientists abroad, particularly as regards the location of the silver in the molecule. Structural formulas of the various arsphenamin compounds, including silver arsphenamin, were published in our preliminary report (Parounagian, M. B.: A Preliminary Report on Silver Arsphenamin, Arch. Dermat. & Syph. 3: 333 [March] 1921).

The literature of silver arsphenamin has been extensive and, although I have made an analysis of all the literature available in America up to the present time, I will content myself at this place to quote from Walson's [3] summary:

> Kolle, Ritz, Galewsky, Hauck and Gennerich appear to be of opinion that silver salvarsan is better than any other salvarsan preparation. Boas, Kissmeyer and Müller seem to think that silver salvarsan is on a par with salvarsan. Dreyfus, Kerl, Schoenfeld, Birnbaum, Bruhns, Lowenberg and Goldberger think that silver salvarsan is better than neosalvarsan. Hoffman, Knopf, Scholtz and Sinn prefer salvarsan to silver salvarsan. Von Nothhaft says he obtains no better results from silver salvarsan than other salvarsan preparations. Friedlaender, Sellei and Hahn speak of very good results from silver salvarsan; Fabry says it might well be called on to supplement or supplant neosalvarsan.

Silver arsphenamin is furnished in ampules like other arsphenamin. The technic of the preparation of the solution requires that the ampule be immersed in 95 per cent. alcohol to detect any imperfections. The ampule is then opened under sterile precautions and the contents are sprinkled on the surface of cool, sterile, recently distilled water, 5 c.c. being used per decigram of the drug. We use the standard mixing cylinders of 250 c.c. capacity. When the silver arsphenamin is completely dissolved, the necessary amount of cool 0.4 per cent. sterile saline solution is added so that the final solution will approximate 20 c.c. of liquid per decigram of the drug. The solution is filtered through previously moistened sterile gauze into gravity burets.

The injection should be carried out slowly, it being made certain that the needle is in the vein properly before the solution is administered. Care in these two features is an important factor in eliminating reactions of any kind.

The patients receive 0.15 gm. as an initial dose, and this is followed by an injection of from 0.2 to 0.25 gm. for each succeeding dose, unless smaller doses are indicated by the character of the case. Injections are given every third or fourth day. Eight injections have constituted a course; a rest of four weeks without treatment has been routine, followed by a further rest or continued treatment (mainly with neo-arsphenamin) as the serology or history indicate. Wassermann tests are repeatedly made.

Our experience with silver arsphenamin began, Oct. 13, 1920, on our service at Bellevue Hospital. The brand of silver arsphenamin used was that made in America by H. A. Metz Laboratories according to the original formula. To date we have treated 756 patients with syphilis. The number of injections given has been 4,290. The patients are divided for purposes of analysis into the following groups: primary syphilis, a total of seventy-one, of whom thirty-nine completed one course of silver arsphenamin; secondary syphilis, 177 patients, of whom seventy-five completed one course; a total of 387 tertiary syphilis, divided as follows: (*a*) Courses completed in nineteen patients with active tertiary lesions of the skin and mucous membranes and twenty-three with Wassermann positive and no lesions; forty-two patients were given one course of silver arsphenamin after treatment with other members of the arsphenamin group. (*b*) Incomplete courses for 262 Wassermann positive tertiaries; forty-four Wassermann negative tertiaries and forty-five patients who had had previous treatment with other members of the arsphenamin group received silver arsphenamin.

Ninety-nine patients were treated who presented symptoms of neurosyphilis; twenty-seven of these completed one course of silver arsphenamin.

Ten congenital syphilitics have been treated, but only two have completed one course of silver arsphenamin.

Many of the patients listed as not having completed a course are still under treatment. Other patients of this group have been lost from observation despite efforts of our follow-up department. It should be especially noted that Bellevue Hospital Dispensary serves a motley population. The majority of the patients whom we have been unable to follow have been seamen, inmates of cheap lodging houses, transients and occasionally patients who have been transferred from this to other hospitals, including patients from the prison ward of the hospital.

The following analyses have been based on cases in which one full course of silver arsphenamin has been completed:

### PRIMARY SYPHILIS

There were seventy-one patients, of whom thirty-nine completed one course.

Of the thirty-nine primary syphilitic cases, twenty-four were dark field positive. The initial Wassermann test prior to treatment in these twenty-four cases gave seventeen completely negative. One case which was negative at the first Wassermann test became 4 plus before the treatment was initiated. One case reported anticomplementary at the first reaction was 2 plus before treatment began. Three cases were reported doubtful; one case, 1 plus; one case, 2 plus, and one case, 4 plus.

These cases treated with silver arsphenamin all responded clinically in a very satisfactory manner.

A number of cases in this group deserve a little more mention. Patient 1335 represents a type of case very favorably acted on by silver arsphenamin. The duration of the primary lesion was two weeks. The dark field demonstrated *Spirochaeta pallida;* the Wassermann reaction was negative. His lesion was completely healed after the fourth injection, and the scar was very minute. Clinically, there was no advance of the syphilitic infection and the Wassermann test has been persistently negative on five different occasions. Exceptionally, a chancre has been healed after two injections of silver arsphenamin.

Follow-up dark fields in primary cases after the diagnostic demonstration have always been negative after two silver arsphenamin injections; occasionally, positive after one silver arsphenamin. The press of routine work has not permitted us to make such examinations in every instance.

The serologic results (and these are not only immediately after the cessation of treatment, for many patients had Wassermann tests at five-week intervals to the number of four and sometimes five) were: Of the seventeen negative, sixteen remained so and in one there has been no report. The patient who developed the 4 plus in the primary stage, but whose initial Wassermann test was negative, became negative; the patient whose first report was anticomplementary, and later 2 plus, developed a 4 plus Wassermann; all the

3. Walson, C. M.: Silver Salvarsan in the Treatment of Syphilis, Am. J. M. Sc. 161:418 (March) 1921.

other patients, including the patient with the initial 4 plus Wassermann have been serologically and clinically negative.

No case of this group has advanced clinically from the primary to the secondary stage.

Six patients presented themselves with initial lesions from which *Spirochaeta pallida,* although searched for on numerous occasions, could not be demonstrated. The lesions on these patients were typical syphilitic chancres.

Wassermann tests were made at frequent intervals on this group of six, with the following results: One patient, whose initial Wassermann reaction was anticomplementary, developed a 4 plus reaction; a second patient, with a negative initial Wassermann reaction, on a series of five Wassermann tests had 1 plus, negative, 2 plus, 1 plus and finally 4 plus, before treatment was initiated.

Another patient whose initial Wassermann reaction was negative developed a 3 plus and then a 4 plus Wassermann reaction. One patient's initial Wassermann reaction was 4 plus.

Two patients of this group had initial negative Wassermann reactions, and the basis for treatment was purely clinical and historical.

These patients treated with silver arsphenamin were clinically cured, and our serologic results have been very satisfactory.

Wassermann reactions have been reversed to negative in four of these five cases. The patient with the initial 4 plus Wassermann reaction had a 3 plus Wassermann at the close of his initial course of silver arsphenamin treatment.

The two patients mentioned above who had negative laboratory findings but who were treated on clinical and historical grounds demonstrate the necessity of occasional independence of laboratory diagnosis.

One of these patients presented himself with two lesions of the coronal sulcus. Although the clinical diagnosis was syphilitic chancres, repeated attempts to demonstrate *Spirochaeta pallida* were fruitless. Wassermann reactions at frequent intervals were also negative. Whether to treat this patient without waiting for laboratory corroboration was a subject of debate among the staff, which was settled in a very unusual manner. The patient called at the clinic on a day usually reserved for women. He pointed out the source of his infection as a certain woman passed through the corridor to the women's waiting-room. Our records showed that she had come to the clinic with active moist lesions of syphilis about the vulva and anus. Treatment of this male patient resulted in a rapid disappearance of his lesions, which formed the basis of a therapeutic diagnosis.

### SECONDARY SYPHILIS

There were 177 patients, seventy-five of whom completed one course.

Seventy-five patients presented themselves with clinical generalized syphilis. The presenting symptoms in these cases were eruption, condylomas, mucous patches, adenopathy, alopecia syphilitica and combinations of these symptoms.

Fifty of these patients who had no previous treatment gave 4 plus positive Wassermann reactions. These patients were treated with silver arsphenamin, the course usually consisting of eight injections. Clinically, these patients responded to this medication in a way which we have not seen approached by the other arsenicals which we had formerly used. Although it is not possible to give a numerical comparison, it is our opinion that the symptoms of secondary generalized syphilis disappear sooner with unaided silver arsphenamin therapy than with the other arsenicals combined with mercury.

The serologic results in this group of cases were analyzed as follows: Thirteen patients gave negative Wassermann reactions at the close of treatment. These patients gave repeated negative Wassermann reactions on different occasions at from weekly to six-week intervals, and our records show as many as six repeated negative Wassermann reactions in this group.

Another group which gave very promising immediate serologic results at the termination of the course of silver arsphenamin, that is, whose Wassermann reactions were negative immediately after treatment, did not retain this negative Wassermann result, but positive Wassermanns crept in at varying intervals of from six weeks to four months. This group had thirteen patients.

On the other hand, fourteen patients whose immediate serologic results were not assuring, that is, positive, either 2 plus, 3 plus or 4 plus, gave us decreasing degrees of positive reports until our last Wassermann test, taken in some instances from three to four months later, was negative and, indeed, in some cases repeated negative examinations were secured although no treatment had been given in the interval.

In addition, two patients of this group of generalized secondary syphilis with 4 plus Wassermann reactions remained 4 plus; two decreased to 3 plus; one to 2 plus; one to 1 plus, and one other case to doubtful. The last group has not had repeated Wassermann tests.

Eighteen other secondary generalized syphilitics presented themselves whose initial Wassermann reaction was not 4 plus, although the patients denied having had any previous therapy. Four of these patients gave negative primary Wassermann reactions. One gave a doubtful reaction; five gave a 1 plus reaction, six a 2 plus reaction, and in two an anticomplementary result was reported.

Clinically, as in the other cases, the improvement was rapid and satisfactory.

The serology in this group appeared to us as being especially worthy of study. Of the four patients whose initial Wassermann reaction was negative, two remained persistently negative after therapy. One advanced to doubtful after two negative results had followed cessation of treatment. The fourth case, negative immediately after treatment, advanced to 4 plus and receded to 1 plus, since which time he has given two negative results at intervals of six weeks.

The patient with the doubtful Wassermann reaction has become negative.

The group of patients having 1 plus and 2 plus initial Wassermann reactions approximated, as far as serologic results are concerned, the two divisions made above for those having 4 plus Wassermann reactions at the beginning of treatment, that is, some cases with promising serology at the cessation of treatment advanced toward positive, and others whose initial serology was positive receded toward the negative.

Of the two patients with anticomplementary initial Wassermann reactions, one has given anticomplemen-

tary results on every examination made; the other has given an anticomplementary immediately after treatment, two doubtfuls, a negative, and his last Wassermann reaction has been 4 plus.

Four patients came to our clinic after having had therapy elsewhere, although their generalized syphilis was clinically apparent. Two of these patients gave a 2 plus Wassermann reaction; one a 1 plus, and the last a negative Wassermann reaction. The clinical results with the use of silver arsphenamin were especially gratifying in this group, because these patients treated with other forms of arsphenamin and some with a combination of arsphenamin and mercury still had lesions of the skin or mucous membranes when they presented themselves. The use of silver arsphenamin cleared these persistent manifestations in a very short time.

Serology at the close gave three negatives, and one of the 2 plus patients had a 4 plus reaction. His previous treatment had been three arsphenamin and fifteen mercury treatments.

Three other cases remain to be reported on in this group of generalized secondary syphilis. One patient's preliminary Wassermann reaction was not reported on. After a course of treatment the Wassermann reaction was 4 plus, but without additional treatment became negative on two occasions. Two other patients with generalized clinical syphilis gave us doubtful initial Wassermann reactions. In both, dark field examinations of open lesions demonstrated *Spirochaeta pallida.*

It is interesting that in both these cases the Wassermann reaction at the close of a single course of silver arsphenamin was 4 plus, but that without additional treatment the Wassermann reaction in both patients has been reduced in one to 1 plus, and in the other to negative.

### TERTIARY SYPHILIS

There were 387 patients, of whom 111 completed one course.

Nineteen patients either came or were referred to our service with active tertiary manifestations of the skin or mucous membranes, such as gumma of the leg, throat, shaft of the penis, scrotum or tonsil. The duration of the syphilis in these patients varied from one year to forty years, and some of the patients, mainly women, were unable to give a history of having been infected. The previous therapy in these patients was practically nil. Only four patients had had any previous arsphenamin therapy, and in two of these only one dose had ever been administered. Mercury by injection had been given in three. The Wassermann reactions were positive in all except two cases. In one of these the Wassermann reaction taken before treatment was anticomplementary, and the other was negative.

Clinically, the results were astounding. Many patients appearing from day to day showed definite improvement within twenty-four hours after administration of the first injection of silver arsphenamin. In instances of extensive gummas, the lesions cleared with intravenous silver arsphenamin alone and required no further local dressing or attention after three or possibly four injections.

Although serologic reversal in this group of patients was not to be expected following one course of treatment, we may still report three patients whose Wassermann reaction after treatment was negative and which remained negative at least on one repetition.

The Wassermann reaction in one other patient was 1 plus and did not advance. In another patient the Wassermann reaction advanced from 1 plus at the close of treatment to 2 plus six weeks later. A third patient whose reaction was 1 plus at the end of the course advanced from 3 to 4 plus on repeated Wassermann examinations. Three patients whose Wassermann reactions were 2 plus at the close of a series of silver arsphenamin advanced to 3 and finally to 4 plus. One patient was 3 plus at the close of his course. Four patients were 4 plus and gave repeated 4 plus results. The shorter series of active tertiary syphilis whose Wassermann reactions were not 4 plus when they came to us showed two patients whose Wassermann reactions went from 2 plus to 3 plus; one patient with an initial anticomplementary report was 4 plus; a third patient, negative at the beginning of the course, was 3 plus at its end, and a fourth case was negative both prior to and after the course of silver arsphenamin.

A group of twenty-three patients was under observation in whom no clinical evidence of syphilis could be determined on physical examination. The diagnosis rested on history and repeated 4 plus Wassermann examinations in all except two of the women patients referred to us from the obstetric service because of the character of miscarried fetuses.

Fourteen of these patients had never been treated for syphilis. Three of the patients had very minimum mercury treatment. Five of the patients had had arsphenamin, but three of these patients had had only two doses. One patient had had only local treatment applied to his initial lesion thirty years before.

The entire group received a course of silver arsphenamin, and the Wassermann reaction in sixteen was not altered. In the remaining seven patients, negative or weakly positive reactions were temporarily secured.

A striking case from this group was that of a patient with history of chancre twenty years ago with a tremendous carotid aneurysm and a specific laryngitis, which allowed him to speak only in a whisper. It was necessary for him to turn his head decidedly to relieve the pressure sufficiently to enable him to whisper hoarsely. Considerable arsphenamin and neoarsphenamin treatment had been of no avail. Silver arsphenamin treatment was finally resorted to. His laryngitis cleared up sufficiently to enable him to talk and, while he is still under treatment and while there has been no change in the aneurysm, he speaks in a perfectly normal tone.

Twenty-seven patients were treated on this service who presented physical signs and symptoms of syphilitic cerebrospinal involvement. The major number of these patients had been under observation by neurologists, and the diagnosis was confirmed by proper laboratory tests of the cerebrospinal fluid. Clinical improvement was noted in many instances. The serology remained practically as it was prior to the initiation of silver arsphenamin therapy intravenously. We have not attempted to inject this drug intraspinally as yet.

### CONGENITAL SYPHILIS

Opportunities for the treatment of congenital syphilis have been limited. Ten patients were treated with silver arsphenamin, and of these only two were car-

ried through a complete course. In one case a patient with a gumma on the left side of the neck was presented. After four injections, a complete disappearance of the gumma was effected. The patient improved in health generally, and a 4 plus Wassermann reaction was changed to negative, after a course of silver arsphenamin.

In the second case there were gummas of both lateral aspects of the lower thighs. Eight injections reduced the Wassermann reaction to 2 plus, but the patient disappeared before the completion of serologic study.

### REACTIONS FROM SILVER ARSPHENAMIN

Untoward reactions following the administration of silver arsphenamin were strikingly few, and, under ordinary circumstances, of little moment. Except for the theoretical possibilities of the occurrence of argyria, the reactions following silver arsphenamin are no different from those that may follow the intravenous administration of the other members of the arsphenamin group. Such reactions as mild gastro-intestinal disturbance, vomiting and diarrhea, faintness, congestion and dizziness, if encountered at all following silver arsphenamin, are exceedingly mild and give no cause for alarm. Recorded rise of temperature cannot be reported here following silver arsphenamin as the patients are of the ambulatory type. Most of the reactions which have occurred were easily explained on the grounds that the patients had disregarded our specific directions concerning the care of the bowels and abstinence from food for three hours previous to their treatment.

One of our patients developed a mild evanescent jaundice after one injection of silver arsphenamin. Treatment was resumed within one week with no recurrence of the jaundice.

Argyria we have never seen.

We have associated a peculiar perifollicular dark red, circumscribed eruption with the administration of silver arsphenamin. We cannot say at this time whether or not this is a specific reaction. It has not been seen in a series of other arsenical administrations.

Reviewing our past experience with the injection of arsphenamin and neo-arsphenamin, it is the general opinion of the staff that reactions have been less numerous and certainly those that have occurred have given less cause for alarm since silver arsphenamin has been used. Incidentally, individual patients who have been intolerant to other arsphenamins have been injected with silver arsphenamin with no ill effect.

A case of dermatitis was observed in the tertiary syphilis series. The patient came under treatment, May 24, 1920, with a 4 plus Wassermann reaction and had two full courses of arsphenamin and mercury which did not reverse his Wassermann reaction. After an appropriate rest period he was given eight silver arsphenamin injections and his Wassermann reaction was reduced to 2 plus. Following the last injection he had a generalized dermatitis of the entire body which was not of an exfoliative nature and disappeared very shortly. The urine of this patient showed a slight trace of albumin.

One of our patients of the Wassermann positive latent tertiary group was given eight silver arsphenamin injections, a total of 1.5 gm. Seven days after his last injection of silver arsphenamin he reported at the clinic with an eruption typical of erythema multiforme. This eruption was limited to the extremities. During the next week the eruption persisted and, although it appeared vesicular, no fluid could be expressed from the tiny papules of which the eruption was composed. The eruption became general within two days. Examination of the urine was positive for Benedict reduction substance. This has occurred within the last week and we have added this case as a single instance in which a severe eruption may have been caused by silver arsphenamin.

### BIOLOGIC SUMMARY

Silver arsphenamin in a total dosage of 1.55 gm. has been able to retard the syphilitic infection in cases of primary syphilis in addition to destroying the organisms and the lesions already present.

In secondary syphilis, when the widespread dissemination of the organisms is known to have occurred and is clinically manifest by widespread eruption and a positive Wassermann reaction, silver arsphenamin has not been universally successful from the serologic point of view.

In one course of eight injections in this group the clinical results have appealed to us as being superior to those of either of the other arsphenamins, even in combination with mercury.

It should be remembered in this regard that the individual dose of silver arsphenamin which we have given has been from 40 to 60 per cent. less than if either of the other arsphenamins had been administered. One should consider this also as a possible factor for the lack of severe reactions.

The combination or the alternation of silver arsphenamin and neo-arsphenamin has been advanced as being worthy of trial, and we have administered neo-arsphenamin both alternately and consecutively with silver arsphenamin. Analysis of such trials cannot be given at this time.

Doses of silver arsphenamin may certainly be increased without fear of ill effect, as has been reported by European observers in treatment of paresis. Occasionally, in our service we have permitted a larger dose to be administered and no ill effects have followed. For future study a group will be selected for treatment with larger doses.

Since mercury has always appealed to us as a necessary drug in the treatment of the syphilitic, we know of no theoretical or practical reason why it should not be administered with silver arsphenamin. The fear of ill result from the combination of three metals, namely, silver, arsenic and mercury, in combination with silver arsphenamin appears to be without basis.

In this report I have merely attempted to bring to your attention the results and trials of the use of American made silver arsphenamin on patients at Bellevue Hospital. The paper read has been almost wholly made of statistics, with comments on some of our interesting problems. We have held no brief for silver arsphenamin.

It may be noted that no conclusions have been appended to the paper. We believe that it is impossible to make conclusions in the treatment of syphilis, especially as to the final results, until the ex-patient is on the necropsy table, and then perhaps only after special microscopic studies of the various organs for spirochetes, as suggested by Warthin's conception.

Perhaps, with wider use of silver arsphenamin in America, other observers will report their findings. The suggestion for using slightly larger doses than recommended up to now should be considered in the future.

SUMMARY

Silver arsphenamin of American manufacture has been administered 4,290 times to 756 patients.

Clinical manifestations in all stages of syphilis have responded to treatment with silver arsphenamin with gratifying rapidity and thoroughness. Our impression is that the response begins more promptly and that the lesions resolve with greater rapidity than is the case with a similar number of treatments with other arsenical preparations.

In this opinion we concur with Kolle, Ritz, Galewsky, Hauck and Gennerich.

126 East Thirty-Ninth Street.

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## ABSTRACT OF DISCUSSION

### ON PAPERS OF DRS. STILLIANS, BROWN AND PEARCE, IRVINE, FRASER, FORDYCE AND ROSEN, SOLOMON AND KLAUDER, AND PAROUNAGIAN

DR. UDO J. WILE, Ann Arbor, Mich.: Dr. Stillians does not mean for us to assume that true sarcoid is in any way ever associated with syphilis. Sarcoid is now generally conceded to be a nonulcerative form of tuberculosis. That syphilitic lesions resembling sarcoid may occur is not difficult to understand. The disappearance of lesions, sarcoid in type, on the administration of antisyphilitic treatment, however, is in no way to be taken as evidence that such lesions are due to syphilis. Except, therefore, for clinical resemblance, there is no relation between sarcoid and sarcoid-like syphilids. Dr. Brown's paper is an admirable exposition of a portion of the work that he and his co-worker have done in attempting to clear up many of the problems connected with syphilitic infection and syphilitic immunity. Every one, I am sure, has watched this work at Rockefeller Institute with the greatest interest. There is only one limitation to the interpretation of the results, and Dr. Brown has never failed to recognize this, and that is that he is dealing with rabbit syphilis and that the findings may not be identical with those occurring in the human host. One can only reason by analogy, and hope that the problems of immunity and infection in laboratory animals approach those occurring in the human being, and one must avoid too positive deductions from the results of animal experimentation. Dr. Irvine has sounded a very important note in the treatment of ambulatory syphilitics. This class of patients presents difficulties of treatment which can be overcome only by education, by legislation and by social service. From the points made in his paper, it may be stated that a large class of patients is seen who are followed but a short time. For this reason, this group must receive the maximum amount of treatment consistent with safety in the shortest possible time. Dr. Fraser's paper indicates that the pathologic side, as well as the clinical chapters on congenital syphilis, must be rewritten. The syphilization of the product of conception can take place at so many different times during the pregnancy, and the conditions under which the fetus develops are so markedly influenced by this factor of times, that the clinical and pathologic pictures must present the greatest degree of variance. I was particularly interested in Dr. Fordyce's paper. I recently published the results of lumbar puncture findings in more than 1,800 cases of syphilis in all stages. My findings parallel those of Dr. Fordyce for the most part. I believe, however, that his figures are, perhaps, conservative, and this is more apparent if we accept Dr. Solomon's views—and I believe that these must be accepted. If, as Dr. Solomon indicates, cerebrospinal involvement may exist without spinal fluid findings, the percentage of involvement is necessarily higher than would be indicated in Dr. Fordyce's figures. Dr. Solomon brings up another important matter, one that I have frequently insisted on, that laboratory criteria should not be too rigidly interpreted.

DR. JOHN H. STOKES, Rochester, Minn.: Dr. Stillians has called attention to an interesting association of the picture of sarcoid with syphilis, without showing the two to be identical. The clinical and pathologic picture of sarcoid need not have a high degree of specificity. The fact that sarcoid may resist all treatment for coincident syphilis suggests that the two need have no etiologic relationship. Dr. Irvine raised many interesting questions. Sooner or later we shall have to learn the lesson of German war preparation, and develop advisory clinical centers for the control of the syphilitic patient under treatment by the isolated practitioner. Laboratory paraphernalia, systematized case records and proper follow-up can be provided only in this way. Most physicians' notes have little value for scientific clinical study. The vital importance of life-long observation should be talked up to patients instead of an ungrounded emphasis on "cure" in syphilis. Control of patients with syphilis cannot be accomplished by official or legal machinery alone. It is a function of the physician's personality. Patients should be taken more completely into our confidence and their cooperation and interest developed. It is to be hoped that the day will come when classes of syphilitics can be gotten together to study their treatment and social problems, as is now the case among diabetics and nephritics. I was impressed in Dr. Frazer's paper by the disparity between clinically and pathologically identified syphilis of the heart in uterine or "hereditary" syphilis. The former is accounted a rare clinical entity. One cannot but admire the completeness of Dr. Fordyce's studies. It is important to recall that his percentage of involvement of the nervous system in early cases is lower than that of some observers, possibly because his patients had had some preliminary treatment, which may produce very rapid effects. Dr. Solomon's contribution still further points the moral of the vanishing diagnostic key to syphilis, and the disappearance of our last criterion of cure. The wise syphilographer no longer says, "You are cured." He adopts the terminology of tuberculosis, and says, "Your infection is arrested—see an expert from time to time as long as you live."

DR. HENRY H. HAZEN, Washington, D. C.: I have used silver arsphenamin in more than twenty cases. I started with small doses, 0.1 and then 0.2 gm. I have not had a single Wassermann reaction reversed. We have seen mucous patches recur after eight injections. In a series of eight injections each in four chancres the induration has not disappeared. That seems rather a poor record. Of course, we realize that such a thing is not impossible with regular arsphenamin; but when a whole series of cases runs that way, it certainly seems possible that silver arsphenamin is not doing all that is claimed for it. I am sorry to disagree with many, but our experience has not led us to believe that it is as effective as has been reported. Another thing: We must remember that when arsphenamin was first brought to our attention it was introduced with a blare of trumpets in the daily press and in the magazines and some of us cannot help wondering whether these wonderful claims that are being made for silver arsphenamin at the present time are of the same order. We should take the reports with a certain amount of conservatism and not allow ourselves to be run off our feet by them.

DR. IRVING SIMONS, Nashville, Tenn: I should like to know what Dr. Parounagian's experience has been in regard to the early reactions and the later ones, after six or twelve hours. Also whether the silver arsphenamin can be injected in the concentrated form, as some of us have been doing with neo-arsphenamin.

DR. JOSEPH EARLE MOORE, Baltimore: The paper by Dr. Fordyce was very interesting to me, particularly because we have just finished working up the results of spinal fluid examinations in 640 cases of syphilis, none of which showed demonstrable neurologic abnormalities. The figures which we obtained largely corroborate the figures which Dr. Fordyce obtained, but they differ from them in one point. Our cases were arbitrarily divided into early and late cases, as Dr. Fordyce divided his into secondary and tertiary. Our patients were examined, as a rule, after one or two courses of arsphen-

amin. The percentage of abnormalities was almost exactly the same, no matter what the patient's manifestations were; whether they were early or whether syphilis had been present for ten or fifteen years; the percentage of abnormalities ranged from 12 to 15. That we took to be an excellent demonstration of what Dr. Stokes brought out concerning a small amount of treatment. To show the effects of treatment we performed spinal puncture at various intervals arbitrarily after from one to five courses of arsphenamin, each course consisting of six injections. There was a definite decrease in the spinal fluid abnormalities, ranging from 26.5 per cent. in patients with no treatment to about 5 per cent. after five courses. Abnormal fluids were twice as common in the white patients as in the colored patients, which fits in very well with the differences in symptomatic neurosyphilis recognized in the two races. Our 640 cases were almost equally divided between men and women, and the percentages of abnormalities observed in the two sexes were practically the same. Our figures are not quite comparable to those of Dr. Fordyce, who included neurosyphilitic patients, but it is striking that in early syphilis in which neurologic abnormalities are absent our study shows no difference in the sex incidence of a symptomatic neurosyphilis.

DR. AUGUST RAVOGLI, Cincinnati: I have found there are fewer cases of syphilis in the rural districts; but sometimes those people coming from the country and going into the city to look for work are liable to be infected. In the mining camps I have found the reverse; a great many miners are infected with syphilis. In reference to the results obtained from the treatment of syphilis, I find that it is not very easy to get good statistical data, because the patients often stop treatment after two or three injections because they feel much better and they do not return until new symptoms are appearing. It is difficult to keep track of all cases. I do not think that the treatment of syphilis can be standardized, because a great deal depends on the general condition of the patient, the care which he takes of himself, and all the occurrences which prolong the disease and make it worse, or help to prevent recovery. I have always been taught that wherever an irritation exists the syphilitic lesions are coming. For this reason we tell patients that they must not smoke because smoking irritates the lips and the tongue and may produce mucous patches. In the same way we have seen patients with tattooed arms, and around the tattoo marks we see crops of syphiltic papules, and so on, proving that wherever an irritation exists the syphilitic manifestation comes. The war proved this by showing syphilitic manifestations around the wounds. Is it not possible that sometimes tapping the spinal column without special indications may cause trouble? I have seen patients who, after spinal puncture, have suffered with headache and felt ill. In this way, if the spinal fluid gives a negative reaction I do not see why the patients should have to undergo the treatment in the spine and be subjected to this suffering. I do not believe that syphilis of the blood vessels has anything to do with the affected condition of the peripheral nerves. I think the invasion of the spirochetes and the syphilitic affection of the arteries in most of the cases is independent of the nerves. I have some sections of tibial artery in a case of endarteritis obliterans in which it is shown that the occlusion of the blood vessels was due to a gumma found in the media which broke the intima. The blood, passing through the shreds of the broken gumma, was easily coagulated, causing spontaneous gangrene.

DR. JOHN E. LANE, New Haven, Conn.: I should like to ask Dr. Parounagian whether he finds that there is any advantage in using saline solution instead of distilled water in the administration of silver arsphenamin. At first I used saline, but for some time I have used distilled water and could see no difference in the effects. I should also like to ask how the inconveniences and accidents following silver arsphenamin compare with those following arsphenamin and neo-arsphenamin. In my rather small series I have already had one case in which a universal scarlatiniform eruption followed the third dose. This eruption was promptly followed by intense jaundice lasting more than six weeks. In this patient there was no question that it was due to the drug, as acute infectious jaundice and syphilitic hepatitis were easily excluded.

DR. RICHARD L. SUTTON, Kansas City, Mo.: In 1914 I made a study of sarcoid, using material secured from a typical case of the Boeck type in a young woman under my care at that time. Dr. Irvine and various other men lent me sections secured from their cases, and Dr. Wende sent me a number of slides from his case of tuberculosis of the hypoderm. Since then I have seen two other cases of the Boeck type. In all cases, the serum reactions were negative for syphilis. All responded definitely and satisfactorily to arsenic. I suspect that arsphenamin would also have given good results. With reference to syphilis as a possible etiologic factor in this disease, I do not believe that these growths are of that nature, and I do not think that Dr. Stillians wishes to leave that impression. The histologic picture of Boeck's sarcoid stands out clearly and sharply, and the response to arsenical medication is almost magical. I have always thought that tumors of the Darier-Roussy type were tuberculous, and closely related to Wende's nodular tuberculosis of the hypoderm. I have never had an opportunity to study of growth of the Spiegler-Fendt type. I was much interested in the excellent results obtained by Drs. Fordyce and Rosen, Schamberg, Harrison and others with intramuscular injections of arsphenamin and neo-arsphenamin. I have for many years been an advocate of this route, and it is a pleasure to have such splendid representative men for company. Looking back over an experience of eleven years, and about 30,000 injections of arsphenamin, I am convinced that the results are far superior to those following intravenous injections of the drug. Of course, the use of arsphenamin is to be regarded merely as one factor in the treatment of the disease. It is a wonderful symptomatic remedy, but in my opinion it is seldom definitely curative. I doubt if any case of syphilis was ever cured by arsenic alone. I think the combination plan, mercury and arsphenamin, is the best, and I think the majority of patients are undertreated rather than overtreated.

DR. WILLIAM H. GUY, Pittsburgh: In the past several years many new remedies have been enthusiastically received, then unqualifiedly condemned, and finally accepted at their true value. In the dispensary of the University of Pittsburgh we have had approximately 300 tubes of silver arsphenamin for experimental use. Using the technic and dosage recommended by the manufacturers in about 150 injections given at weekly intervals in courses of six or eight, we concluded that results in the control of cutaneous manifestations were not to be compared with those obtained with ordinary arsphenamin in the dosage ordinarily used. Following this experience, we combined mercury with silver arsphenamin and our results improved. We felt that if, as we have been informed, silver arsphenamin is from two to three times as effective a spirocheticide as arsphenamin, dose for dose, there must be something in the drug. We therefore attempted to better our results by increasing the dosage, but we quickly learned that we were limited as to the size of the dose we were able to give because of severe reactions. Our limit of safety was approximately 0.1 gm. to 60 pounds of body weight. In the animal toxicity tests a 2 per cent. solution is given by syringe, and we note that the hygienic laboratory reports equivalent toxicity for arsphenamin and silver arsphenamin. Giving the drug in concentrated solution therefore suggested itself, and we have recently been using a 2 per cent. solution. With the syringe introduced in the vein in the usual way, we draw a few cubic centimeters of blood into the syringe so that it will be thoroughly mixed with the silver preparation and then reinject it slowly, after the method described by Walson. We have not attempted to increase dosage to 0.1 gm. to 30 pounds body weight as arsphenamin is ordinarily used, but we have given 0.4 gm. without reaction of moment. The number of cases we have had has not given us enough data from which to draw definite conclusions, but our impression is that silver arsphenamin is certainly no better than arsphenamin as an adjunct in the treatment of syphilis. It seems to me that with the administration of the large amount of silver contained in this drug sooner or later one may anticipate argyria, just as we have seen this very much to be avoided condition develop following the ingestion of other silver salts.

DR. PAUL E. BECHET, New York: Dr. Guy has "taken the wind out of my sails" by bringing up the question of argyria. I consider this a very important point, and it was my intention to bring out some discussion about it. I did not hear Dr. Parounagian mention this possibility in his paper, and I should like to have him, or any one else who has used silver arsphenamin, state whether or not he has ever noted such a complication.

DR. I. L. MCGLASSON, San Antonio, Texas: A case that typifies very well the negative findings in the blood and spinal fluid was that of a soldier who, while waiting his turn in the arsphenamin room, was seized wtih epileptiform convulsions and died the next day. At the necropsy we found that he had a gumma in the brain measuring 2 inches in diameter. In spite of the size of the overgrowth and the serious attack made on brain tissue by the spirochete, the blood and spinal fluid both were negative.

DR. G. M. KATSAINOS, Boston: Concerning experimental syphilis on laboratory animals and especially in rabbits, can all those experiments be considered conclusive? It is well known that syphilis is strikingly a human disease, and I think that what we see in rabbits cannot be compared with what happens in man. Though we have an enormous amount of human syphilis transmitted experimentally to rabbits, the cases of transmittance of rabbit syphilis to man are too limited to permit us to draw any conclusions. Metchnikoff reports two cases of lues venerea transferred back to human beings from apes. In both of these the disease is supposed to have run an exceedingly mild course. Buschke reported the case of a laboratory assistant acquiring syphilis from a rabbit, and the virus was not reduced in virulence by passage through at least six or seven rabbits. There are two other records in the literature of syphilis transferred back to man from rabbits. In neither case is there reason to believe that the disease ran a milder course than the human to human infection. In one of these cases, there had been sixteen rabbit passages of the infectious material. Other cases are reported by Levaditi and Marie. Now the question arises, Can those spirochetes be considered specific, or better, "syphilidogonous" or syphilis producing? One might say that Levaditi was misguided in his experiments; but if such an authority as Levaditi was mistaken, what weight can be attached to the opinions of others less familiar with laboratory syphilis? I think, therefore, that every experiment on rabbits, to be valuable, must be tested on apes, because it is impossible to be tested on man, and that a spirochete to be syphilidogonous, must produce syphilis either in man or at least in apes with all its consequences. The rabbit must be considered little more than a living culture tube of syphilis. In other words, the rabbit is syphilidisimous but not syphilitic, contracting the disease but not developing it as a human being. Now we pass the laboratory era of syphilis, and the lavish drawing of cerebrospinal fluid, with so many contradicting conclusions from chemical and biologic analysis of that fluid, that I wonder whether we can keep on doing that without any tangible damage to the patient's future health. Does the puncture of the spinal canal predispose the patient to neurosyphilis or not? We must not forget that syphilis manifests itself in either a locus minoris resistentiae or in a locus of overexcitement or overwork. Many syphilographers, in trying to explain the reasons of the early manifestations of paresis and tabes dorsalis in these last years of laboratory syphilis, forget that one of the principal reasons is the lumbar puncture and the repeated injury and disturbance which is caused by it on the nervous system. We must, therefore, be conservative and not puncture the spinal canal except when it is strictly indicated for diagnostic reasons, and when the patient's nervous system, already irreparably damaged, can stand that with impunity. It is proved beyond the slightest doubt by all syphilographers, from Grünbeck to Fournier, that this disease localizes where there is damage and disturbance done, and the routine lumbar puncture, as it is practiced so extensively today by so many not qualified to do it, invites the syphilidogonous spirochete to the nervous system and adds to the patient's liability to develop early or later neurosyphilis.

DR. HERMAN GOODMAN, New York: I have had the opportunity of observing the therapeutic action of silver arsphenamin as brought from abroad and of silver arsphenamin in the work of Dr. Parounagian at Bellevue Hospital. I will limit my remarks concerning silver arsphenamin to what I have termed the biologic test. No patient who came under treatment in the primary stage of syphilis has advanced either serologicaly or clinically, that is, no such patient has shown any secondary manifestation of the disease or a positive Wassermann reaction at the close of treatment or since the close of treatment, if the primary Wassermann test taken before treatment was negative. The diagnosis in these cases had been made by dark field demonstration of *Spirochaeta pallida*. Not all the frank secondary syphilitics have shown serologic reversal as the result of a single course of silver arsphenamin. There has, however, been a group with negative Wassermann reactions after eight injections, and the test has since been persistently negative, although no other treatment has been administered. There has been another group in which the Wassermann reaction, positive immediately after treatment, has since become negative, although no other treatment has been given. The period of observation has been too short to say whether silver arsphenamin is better or not as good as other drugs of the arsphenamin series. Certainly, the lesions have cleared as quickly, if not more so, than with the others, even when they have been supplemented with mercury. The results obtained by Dr. Parounagian and by Dr. Rosen are gratifying. I have never seen a recurrence, as mentioned by Dr. Hazen in his discussion.

DR. ISADORE ROSEN, New York: There seems to be some diversity of opinion about the value of silver arsphenamin. At the Vanderbilt Clinic, in the service of Dr. Fordyce, we have given in the neighborhood of 1,800 doses of the drug. At first we were rather timid about using it. The very satisfactory reports of the European observers gave us more courage. The clinical results have been very satisfactory. Primary and mucous membrane lesions would disappear after from one to three injections. The same rapid involution took place in the other cutaneous syphilitic manifestations. The patients were carefully examined each day, and comparisons were made with other patients treated with the other arsenical preparations. Some old neurosyphilitics were treated with the drug, and the clinical improvement in some of them was remarkable. The patient would ask for the "black medicine." Some of them would always get table reactions with the other arsenical preparations, whereas no ill effect was noted with this drug. I think there is no question of its value when you want a rapid sterilization of your patient.

DR. J. V. KLAUDER, Philadelphia: The question of neurosyphilis is of vital importance. From the study made by Dr. Solomon and myself it was shown that the diagnosis of neurosyphilis cannot always be made by examination of the spinal fluid, and that the spinal fluid is not always a guide to treatment or an indication of the progress of the disease. The most important, and in the majority of cases the initial, objective symptom of neurosyphilis is the presence of one or the other type of pupillary abnormality. About 30 per cent. of patients with pupillary abnormality as an isolated evidence of neurosyphilis have negative spinal fluids, regardless of whether the blood Wassermann reaction is positive or negative. The status of a syphilitic with isolated pupillary abnormality cannot be stated definitely unless the spinal fluid is examined. In the cases in which the spinal fluid is negative, our conception of this phenomenon is that the pupillary abnormality remains as a neurologic scar of a former neurologic process. This not infrequently occurs in the absence of prior treatment. In the present state of our knowledge we do not know whether or not in the foregoing type of case the spinal fluid will become positive in the course of years. We are inclined to believe, however, that such an occurrence is the exception rather than the rule. The realization of the foregoing remarks is important in the examination of syphilitics and to those engaged in industrial medicine. In the examination of men for industrial positions, it is important not to place latent neurosyphilitics in hazardous positions because of the important rôle that trauma may play in the

causation of paresis. The rôle of trauma is frequently seen among paretic admissions to the Boston Psychopathic Hospital. Latent neurosyphilitics who after head injury acutely develop symptoms of paresis are in all probability the type of case which Southard and Solomon styled paresis sine paresi. These cases have no subjective symptoms, but present objective evidences of neurosyphilis with a paretic type of spinal fluid.

Dr. John A. Fordyce, New York: The problem of congenital syphilis is one of the most important ones with which we have to deal. By a study of the end-results of the infection and the active lesions, as has been so well done by Dr. Fraser, we obtain a real insight into what the infection can do. Fortunately, pathologic anatomy, so long neglected for the chemistry of metabolism and the intermediate changes during life, is again attracting the attention of serious students of medical problems. The mouth administration of mercury with chalk, calomel or rubbings does little more than hold in temporary check an infection of such intensity. It is not surprising, therefore, that a pessimistic attitude is the normal one among pathologists, and a more than occasional one among practitioners as to the curability of congenital syphilis. The visceral lesions of congenital syphilis as regards the prognosis of the infection are of vastly more importance than the external manifestations. We are fortunate in having emphasis placed on them by the painstaking work of Dr. Fraser. A careful study of the focal lesions in congenital syphilis supplies strong evidence in support of Warthin's contention as to the significance of similar lesions in the viscera of the acquired type of the disease. The prophylaxis of congenital syphilis places on the practitioner grave responsibility when his advice is asked as to when a syphilitic should marry. Are the criteria which we now employ as evidence of cure sufficiently conclusive? In no other disease of wide prevalence have we specific remedies as in syphilis, and in no other can the treatment be so readily controlled by our laboratory procedures. We should, however, never lose sight of the fact that the body may harbor the spirochetes and the specific reaction fail to reveal their presence. In other words, while a positive Wassermann reaction with certain limitations shows the presence of syphilis, a negative one is not always conclusive as to its absence.

Dr. Arthur W. Stillians, Chicago: I have tried to show that the histology of sarcoid is not diagnostic of tuberculosis. Deep, indolent lesions occur in syphilis which, according to Darier's own criteria, are to be classed as subcutaneous sarcoid. Unless the definition of subcutaneous sarcoid is made narrower, syphilis must be accepted as one of the etiologic factors. I wish to emphasize Dr. Irvine's remarks on the importance of social service in the treatment of syphilis. We in Chicago consider social service one of the most important factors in the treatment of this disease.

Dr. J. Frank Fraser, New York: The evidence presented by those who have had experience with silver arsphenamin is contradictory. Dr. Bechet referred to the occurrence of argyria, which is a serious condition. It is quite possible that some individuals may be more susceptible to the action of silver preparations than others. I recall one case in which silver poisoning followed the daily application of a silver pencil to an unhealed appendectomy wound. I would suggest further study of the action of this new preparation and a series of experiments on animals with the view of determining its toxic properties. Before recommending its general use in the treatment of syphilis, one should feel certain that it possesses a distinct advantage over the old preparations.

Dr. Mihran B. Parounagian, New York: I have stated the facts as we observed them after 4,290 injections. The clinical results have been most satisfactory, far more so than after the use of any other of the arsphenamin group, either the imported or the domestic variety. I make this statement after observation personally of the patients day after day, watching the processes of evolution or involution. I have never seen an instance of argyria in the group of cases observed. The only report known to me of reported argyria is one by Lochte, a chiropractor from Germany. There is much doubt regarding the authenticity of this reported instance. The by-effects of silver arsphenamin as compared with arsphenamin have been much more mild. In an early series of 373 injections we administered the drug in slightly more diluted form, and with little more care. We had no "table reactions" whatsoever in this series which could be laid to the silver arsphenamin. Since using the drug more concentrated we have had the reactions as tabulated in the body of the paper. In considering the Wassermann reaction changed, it should not be forgotten that we are using dosage which is from 40 to 60 per cent. less than when arsphenamin or neo-arsphenamin is used; for example, the maximum dose of silver arsphenamin as used by us has been 0.3 gm., while the maximum dosage for arsphenamin would have been at least 0.5 gm. if not 0.6 gm., and for neo-arsphenamin 0.9 or 1.0 gm. The smaller doses have been proportionate, as our initial dose is 0.1 gm. As you use this preparation further you will find it a worthy one, and it may not be out of place to note that the unfavorable discussion has come only from those whose experience with this drug has been limited.

Dr. John A. Fordyce, New York: In addition to the cases reported from our clinic I have used silver arsphenamin in my service at the City Hospital and in a number of private cases. Clinically it is just as efficient as the other preparations and is certainly freer from immediate reactions; for this reason many patients prefer it, as Dr. Rosen has said. As some patients who have become intolerant to arsphenamin or neo-arsphenamin are able to take this new preparation, we have, it would seem, in silver arsphenamin a very definite addition to our therapeutics.

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# THE MANAGEMENT OF A DIPHTHERIA OUTBREAK IN A PRIVATE SCHOOL *

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In spite of the tremendous advances that have been made during the last thirty years in the diagnosis and treatment of diphtheria, with many of which the laity has become thoroughly familiar, no disease breeds greater chaos in a shorter period of time, when it occurs in an institution which has, at least temporarily, the physical as well as the educational responsibility of a large group of children.

The theoretical management of a situation of this type is fairly simple, but the practical application of these theories offers difficulties, medical as well as human, which are often a source of tremendous concern and frequently tax ingenuity and tact, before a satisfactory solution of the problem is achieved.

Diphtheria, from a hygienic standpoint, has since 1913 been placed on an entirely new basis, and it will be well to consider the bearing of this fact on its control. Up to the time that Schick put at our disposal a method whereby it was possible to determine the individual susceptibility to the disease, the problem of immunity to diphtheria had not been solved. In a general way it had been recognized that under 1 year of age the condition was rare, between 2 and 5 years most common, and among adolescents and adults again less prevalent. Its occasional occurrence, however, at any age, made all individuals on exposure potential susceptibles, and from a public health standpoint this conception was the only tenable one. With the knowledge that evolved from Schick's discovery, there has developed an entirely new point of view as to immunity against and prophylaxis of the disease.

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The management of diphtheria outbreaks in institutions where large numbers of children were collected had depended, until Schick described his test, on the feasibility of sending these children to their respective homes. In orphan asylums and in hospitals, all children exposed were passively immunized with 1,000 units of antitoxin, cultures were taken of noses and throats, and those children suffering from the disease or found to be carriers were properly isolated. When the exposure was immediately terminated, this procedure was usually efficient in eradicating the disease. When it was not possible, however, to discover and remove all carriers, it was soon noticed that, whereas fresh cases of diphtheria did not appear for a considerable period of time after the prophylactic injection of 1,000 units of antitoxin, in from two to four weeks new children came down with the disease. It was then discovered that an injection of antitoxin was able to protect against the condition for only a short period of time, and it was found necessary to repeat the prophylactic dose in two or three weeks, if there was still a possibility of exposure.

In schools, on the other hand, where the responsibility for the children rested with their parents, the technic was very variable. In some places all the students were sent home and left to the very uncertain management of the family physician. In others, more properly supervised, cultures were taken in the school, carriers sent home with instruction as to isolation, and prophylactic doses of antitoxin were given either in the school or by a medical adviser at home. In either event the school was invariably closed for a considerable period of time, and often numerous fantastic procedures were employed to disinfect rooms or correct errors in plumbing, hoping thereby to prevent a recurrence of the disease by methods absolutely futile.

It is perhaps worth while to mention that one result was always accomplished by this very unsatisfactory plan, namely, a complete disorganization of the school and often a reappearance of the disease after the children returned to their work, because some carrier had not been discovered in the routine examinations made under the supervision of many and occasionally incompetent observers. Furthermore, with, for example, 100 children in the institution going to their respective homes, there was always the possibility of a corresponding number of new foci starting in uninfected communities. With human nature constituted as it is, parents have always had a false sense of security in the assumption that in the home the previously exposed child enjoyed a far greater degree of safety; and, whereas properly qualified medical men and sanitarians have realized the futility of this argument, steps have rarely been taken to combat it.

With a fuller realization of the responsibility entailed in the administration of foreign serums, the arguments for and against which are not within the scope of this paper, it must be admitted that the contention is sound that any therapeutic measure, however benign, which can be definitely proved to be unnecessary, is always contraindicated. Briefly summarized, this method of handling a diphtheria outbreak can be harshly criticized for the following reasons:

1. It places the responsibility for the control of the situation on too many, often incapable heads.
2. It is conducive to the spread of the disease by the formation of new and distant foci.
3. It entails the administration of foreign serums to all the children, whether it is necessary or not.
4. It disorganizes the school.
5. In view of our present conception of the immunity and prophylaxis of diphtheria, it cannot possibly be either efficient or successful.

Realizing its shortcomings, the method described above was pretty generally recommended up to 1913. Since Schick described his technic of testing intracutaneously to determine the presence of immunity or susceptibility to diphtheria, and Behring applied the toxin-antitoxin injection method of conferring an active immunity on all susceptibles, the disease from an epidemiologic standpoint has undergone, under ideal conditions, many changes. In this country the work of Park and Zingher is ample proof that the claims of Schick and Behring have stood the test of time and will be recognized in the future as a great boon to humanity, one more convincing evidence of the tremendous bearing of laboratory on clinical medicine.

It may be well to digress for a moment and briefly call attention to the main steps in the conquest of diphtheria. The epidemiologic and clinical phases are too intimately connected to permit of separate discussion. Less than fifty years ago, nothing was known of the disease except its clinical characteristics and tremendous mortality rate. In 1883, Klebs discovered the etiologic agent. In 1884, Loeffler isolated the organism and cultivated it on artificial mediums. In 1893, Behring gave to the world the epoch-making antitoxin, and reduced the mortality from 75 per cent. to 10 per cent. Since then, however, the morbidity and mortality from the disease had not changed, and no advances were made until Schick described the method whereby immunity was determinable, and Behring the method by which active immunity might be conferred. Each one of these scientific laboratory achievements today plays a rôle in the control of diphtheria and, combined, they place at the disposal of medicine means through which the ravages of diphtheria may be spared to posterity.

The bearing of these facts on the epidemiologic study of this disease can best be emphasized by detailing the methods by which an outbreak of diphtheria in a large private boarding school was eradicated.

## MANAGEMENT OF THE OUTBREAK

March 9, 1921, three boys about 10 years of age, in a private school containing about 150 students ranging from 8 to 18 years, reported themselves ill. On investigation it was learned that one boy, a member of a religious sect that recognized no disease, had been ailing about four days (March 5, 1921) without attention having been paid to his condition, and that he had been mingling freely with the other members of the school. Examination of the three boys revealed that they were suffering from clinical diphtheria, and they were immediately isolated and appropriately treated with antitoxin. The diagnosis was confirmed bacteriologically. Coincidentally with the development of these cases of diphtheria, five other boys became acutely ill with what was apparently influenza, the diagnosis of which, notwithstanding that no membrane was present and nose and throat cultures were negative, was difficult and worrisome. The question immediately arose as to what steps should be employed to control and eradicate this incipient epidemic of diphtheria.

The following procedures were carried out: Nose and throat cultures were made on all inhabitants of

the school on the same day that the cases were discovered. Immediate cooperation was available with a very efficient laboratory manufacturing biologic products, so that a fresh supply of toxin for the Schick test was obtained in proper dilution (0.2 c.c. contained 1/50 minimal lethal dose) and an equal quantity of toxin heated to 75 C. for ten minutes to be used as a control. March 10, twenty-four hours after the outbreak was recognized, Schick tests and controls were made on every member of the school, including any possible contacts. The first reading was made at the end of forty-eight hours, March 12, and the percentage of positive reactions was 65. This was verified by a second reading made at the end of ninety-six hours.

Of the cultures made, March 9, out of 150, ten were found to be positive and these boys were immediately isolated in a building separate from the rest of the school. The question arose when the first Schick reading was made as to what should be done with those boys having a positive reaction. The decision reached was that all carriers with positive Schick reactions should receive 1,000 units of antitoxin subcutaneously; but since the original exposure to the disease had occurred six days previously, and as no new cases had developed for three days, that an immunizing dose of antitoxin would not be given to those having a positive Schick reaction, who were not apparently carriers, unless another case of diphtheria manifested itself. This decision seemed justifiable when the relatively short incubation period of the disease was considered. The one questionable link in the chain of argument, however, rested in the fact that it was not possible to detect all the carriers on the first culture. On the day that the second Schick reading was made at the ninety-sixth hour, five days after the last case of diphtheria and eight days after the exposure of the first boy ill of the disease, another case developed. At that time all the children with positive Schick reactions received 1,000 units of antitoxin, and no other case occurred among the students. One of the nurses, however, who was caring for the sick boys contracted the disease, notwithstanding that she was credited with having a negative Schick reading. This apparent inconsistency was explained when it was learned that, instead of having had her test on the day that the concentrated toxin was originally diluted, forty-eight hours had elapsed and the toxin consequently had deteriorated. That a single culture of the noses and throats of contacts was not sufficient was proved by the fact that a second culture made six days after the primary one showed fourteen additional carriers.

With proper isolation of the sick boys and the carriers, the problem presented itself as to how the healthy boys in the school should be controlled. When the disease first manifested itself, the parents or guardians of all the students were immediately notified. The expected amount of consternation occurred; but when it was explained that the management of the situation was to be placed in the hands of a representative of the department of pediatrics of the University of California, the confusion rapidly abated. The parents of about half a dozen boys insisted on removing their children from the school immediately. The Schick tests had been done on these students, and their respective medical advisers were informed of the situation and cooperated in each case, so that the boys received the same treatment that was accorded the pupils that remained in the school. No boy staying in the school after the initial consent of the parents was obtained was allowed to leave for any purpose. Only parents were allowed to visit the boys, and always under proper supervision. Class room exercises and athletics proceeded as usual. Cultures were made on the noncarriers at five day intervals, but after the second examination no fresh carriers were discovered.

## COMMENT

It is comparatively simple to write a description of a situation of this type, and even less difficult for a trained mind to grasp immediately its details; but there is a certain human element bound up in a problem of this kind which, to say the least, taxes the ingenuity and patience of those who have it in charge. The criticism, the blame, the doubt, the apprehension of parents under such circumstances, make the task truly burdensome, particularly for the master of the school.

Some very interesting facts can be learned from a careful study of the records of this outbreak. That the percentage of positive Schick reactions in boys from 8 to 18 years of age should have been as high as 65 is very remarkable when one considers the records that have been published by numerous observers. It suggests the possibility, in view of the fact that these boys come from a stratum of society where diphtheria is not prevalent, that repeated exposures to the disease play a rôle in the development of a natural active immunity.

The bacteriologic side of this outbreak presented probably the most difficulties, particularly when the second large group of carriers was discovered. It is very difficult to explain to parents why the noses and throats of their children should be negative at the first examination and positive at the second examination, particularly when subconsciously they are associating the whole situation with neglect on the part of some one.

Too much stress cannot be laid on the most assiduous attention being given to the supervision of this phase of the problem. When throat cultures are made, the specimens should be obtained from the crypts of the tonsils, if the tonsils are present; and, when removed, the cultures should be taken from the tonsillar fossae and as high up on the posterior pharyngeal wall as possible. In taking nose cultures, the swabs should be introduced far back into the posterior portion of the nares. It may sound superfluous to call attention to the importance of having the cooperation of a laboratory in which the clinician has unbounded confidence; but when the importance of correct interpretation is considered, no one thing can make the management of a diphtheria outbreak simpler than the unquestionable experience and capacity of the bacteriologist. On account of the inconveniences entailed in the isolation of the twenty-four carriers, very early recourse was had to the use of toxicity tests in guinea-pigs to determine the virulence of the bacteria, and it was surprising that of the carriers a large percentage showed nonvirulent diphtheroids. The final raising of the quarantine was unquestionably expedited by this method.

When conditions in the school were normal, advantage was taken of the knowledge gained from the Schick tests, and communications were addressed to the parents of all the boys explaining to them the import of these results. They were informed briefly that, if their children had negative Schick reactions, they would probably always remain immune to the disease; and when the reactions were positive, they

were advised of the toxin-antitoxin method of conferring active immunity, and urged to have this treatment carried out by their medical advisers.

### SUMMARY OF METHOD

The following facts may be given as a means of controlling a diphtheria outbreak in a boarding school:

1. Immediate isolation and treatment of the sick children.
2. Immediate, carefully supervised nose and throat cultures on all members of the school.
3. Schick tests with proper controls on all members of the school within twenty-four hours.
4. Administration of 1,000 units of antitoxin subcutaneously to all children having positive Schick reactions at the end of forty-eight hours.
5. Reculture of noses and throats of all contacts two days after the primary culture.
6. Isolation of all ill children from the healthy children and from the true diphtheritics until a positive diagnosis is established.
7. Immediate isolation of all the carriers and, when it is possible, employment of toxicity tests to avoid the exposure of those children having avirulent diphtheroids to those with true virulent organisms.
8. When the outbreak is controlled, the conferring of active immunity on all children with positive Schick reactions by the proper injections of toxin-antitoxin mixtures.

350 Post Street.

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# REVIEW OF THE HILLSDALE, MICH., TYPHOID FEVER EPIDEMIC OF 1920

RICHARD M. OLIN, M.D.
State Health Commissioner
LANSING, MICH.

As usual, ignorance and carelessness laid the stage for the typhoid fever outbreak in Hillsdale, Mich., during the fall of 1920, which developed into an epidemic, with eighty-three cases and eight deaths before it was controlled.

Reports of several cases of typhoid received by the Bureau of Communicable Disease of the Michigan Department of Health late in October, 1920, indicated that a severe epidemic of typhoid might be expected in the city. Consequently, October 27, the chief medical inspector of the department and an assistant state sanitary engineer[1] were sent to Hillsdale to discover the source of infection and to assist in controlling the spread of the disease.

### WATER SUPPLY

Hillsdale, with a population of 5,476, is located in the southern part of the state, in a narrow out-wash plain bordered by large terminal moraines. It obtains its water supply from Baw Beese Lake. The pumping station is on the part of the lake nearest the city and is about 1¼ miles from the central part of the city.

Baw Beese Lake receives comparatively little contamination, and prior to 1917, the city water supply received no treatment. During the early part of 1917, an epidemic of typhoid was experienced in the city, investigation indicating that the infection came from the city water supply which had probably been contaminated by a crew of men cutting ice on the lake near the intake. In September, 1917, a liquid chlorin apparatus was installed, and since then the water has been treated with chlorin almost continuously. An experienced analyst at Hillsdale College makes examinations of the treated and untreated water twice a week, reporting at monthly intervals the results of these examinations, together with the amount of water pumped and the amount of chlorin used each day, to the Michigan Department of Health.

These records showed that chlorination had been continuous throughout the year, up to the time of the outbreak in 1920. The amount used varied between 0.25 parts per million and 0.8 parts per million. Bacteriologic examinations have occasionally shown gas formation in 10 c. c. specimens when planted in lactose broth at the end of forty-eight hours, but seldom in twenty-four hours. Further examinations indicated a relatively safe water supply.

The analyst at Hillsdale College was following the methods of water examination required by the United States Public Health Service. To obviate the possibility that the mediums being used in this laboratory might be faulty, a supply of mediums made in the Bureau of Laboratories of the Michigan Department of Health was taken to the college laboratory and planted in parallel with the analyst's mediums. The results shown in Table 1 were procured from these plantings. These indicate that the mediums used in the college laboratory were similar to the mediums made by the state laboratories and also show that a safe water was being delivered to the city at the time these plantings were made.

TABLE 1.—RESULTS OF PARALLEL PLANTINGS

| Date | Source of Water | Colonies on Agar 37 C. | Lactose Broth Tubes 10 C.c. Water Samples 24 Hrs. | 48 Hrs. | Endo's Plates | Fermentation |
|---|---|---|---|---|---|---|
| Nov. 4 | Chlorinated city water from tap at college | 125 | | | | |
| | Analyst's broth | ... | 0 | 0 | | |
| | State Dept. of Health broth | ... | 0 | 0 | | |
| Nov. 4 | Chlorinated city water from tap at pumping station | 1 | | | | |
| | Analyst's broth | ... | 0 | 0 | | |
| | State Dept. of Health broth | ... | 0 | 0 | | |
| Nov. 4 | Unchlorinated city water from pump well at water works | 15 | | | | |
| | Analyst's broth | ... | 0 | 0 | | |
| | State Dept. of Health broth | ... | 0 | ⅔* | — | — |
| Nov. 6 | Chlorinated city water from tap at college: | | | | | |
| | Analyst's broth | ... | 0 | 0 | | |
| | State Dept. of Health broth | ... | 0 | 0 | | |
| Nov. 6 | Sample of water purposely contaminated: | | | | | |
| | Analyst's broth | ... | + | + | + | |
| | State Dept. of Health broth | ... | + | + | + | |

* Very little gas in state department of health broth; cloudiness and some indication of gas in analyst's broth.

### EPIDEMIOLOGY

Survey of the nineteen cases of typhoid reported by Oct. 29, 1920, pointed to the infection's coming from a single milk supply. This milk supply was collected in large cans from seven different producers by a distributor, Charles Stitt, and was bottled in a small building adjacent to his residence.

Clarence Stitt, son of the distributor, had become sick, September 15, and was confined to his bed after September 19, with what was clinically diagnosed as typhoid fever. He was nursed by the mother, Mrs. Charles Stitt, a general helper being hired to care for

1. Medical inspection: S. R. Hill, M.D.; sanitary survey: W. C. Hirn and A. T. Kunze; bacteriology: M. Crooks.

the house and the cooking. The local health officer gave instructions for the care of the patient, but did not prohibit the distribution of milk from the premises.

Charles Stitt, the distributor, complained of not feeling well during the interval from September 25 to October 5. He continued, however, working with the bottling of the milk and handling the supplies.

Sale and distribution of milk from the Stitt premises was prohibited by the Michigan department of health, October 29, one day after the investigation had started.

A meeting of the Hillsdale city council was called, November 5, and was attended by the state commissioner of health, the state sanitary engineer, the epidemiologist, and the director of the bureau of laboratories. An ordinance requiring that all milk sold in Hillsdale be pasteurized, and means be provided for free immunization against typhoid was passed at this meeting on advice of officials of the Michigan department of health.

Previous to the outbreak of the disease in Hillsdale, there had been two cases of typhoid in Hillsdale County, which in no possible manner could be connected as the source of the infection in the case of Clarence Stitt. A few weeks before he became sick, Clarence Stitt had returned from a trip to Indiana, and it is most probable that he contracted the disease while in that state. A sister who had been in Indiana with him returned to Washington, D. C., and became sick with typhoid in that city simultaneously with Clarence Stitt.

### BACTERIOLOGY OF HILLSDALE EPIDEMIC

Since epidemiology of the Hillsdale typhoid epidemic pointed to some member of the Stitt family as infecting the milk supply, six persons associated with the milk distribution plant were considered as potential sources of infection. Four of the family gave positive Widal reaction, and two negative. This in itself was of no significance, since all had had typhoid vaccine.

TABLE 2.—DILUTIONS OF DIAGNOSTIC SERUMS AND RESULTS OF TESTS

| | Direct Agglutination with | | | | | | | | | | | | | | | | | | | | | | | | Agglutination with Charles Stitt Serum Absorbed | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Antityphoid Serum Diluted | | | | | | | | | Serum Paratyphoid B | | | | Serum Paratyphoid A | | | Serum, Clarence Stitt | | | | | | Serum, Charles Stitt | | | | | | Sodium Chlorid Solution | | | |
| Culture | 80 | 160 | 320 | 640 | 1,280 | 2,560 | 5,120 | 10,240 | 20,480 | 80 | 160 | 320 | 640 | 80 | 160 | 320 | 80 | 160 | 320 | 640 | 1,280 | 2,560 | 80 | 160 | 320 | 640 | 1,280 | 2,560 | | 100 | 200 | 300 |
| 340 | + | + | + | + | + | + | + | ± | — | + | ± | — | — | — | — | — | + | + | ± | — | — | — | + | + | ± | ± | — | — | — | — | — | — |
| 338 | + | + | + | + | + | + | + | ± | — | ± | ± | — | — | — | — | — | + | ± | ± | — | — | — | + | + | ± | — | — | — | — | — | — | — |
| 355 | + | + | + | + | + | + | + | · | — | ± | ± | — | — | — | — | — | + | + | + | ± | — | — | + | + | ± | — | — | — | — | — | — | — |
| 347 | + | + | + | + | + | ± | — | — | — | · | · | · | · | — | — | — | + | + | + | ± | — | — | + | + | ± | — | — | — | — | — | — | — |
| 332 | + | + | + | + | + | · | + | ± | — | ± | · | · | · | — | — | — | + | + | + | ± | — | — | + | + | ± | — | — | — | — | — | — | — |
| 331 | + | + | + | + | + | · | · | ± | — | · | ± | — | — | — | — | — | + | + | + | ± | — | — | + | + | ± | — | — | — | — | — | — | — |
| 296 | + | + | + | + | + | · | ± | · | — | · | ± | — | — | — | — | — | + | + | ± | — | — | — | + | + | ± | — | — | — | — | — | — | — |
| 318 | + | + | + | + | + | · | · | ± | — | · | · | — | — | — | — | — | + | + | + | ± | — | — | + | + | ± | — | — | — | — | — | — | — |
| 307 | + | + | + | + | + | · | ± | · | — | ± | · | — | — | — | — | — | + | + | + | ± | — | — | + | + | ± | — | — | — | — | — | — | — |
| 324 | + | + | + | + | + | · | · | ± | — | · | · | — | — | — | — | — | + | · | + | ± | — | — | + | + | · | ± | — | — | — | — | — | — |
| 326 | + | + | + | + | + | · | · | ± | — | ± | · | — | — | — | — | — | + | + | + | ± | — | — | + | + | ± | — | — | — | — | — | — | — |
| 415 | + | + | + | + | + | · | ± | · | — | · | ± | — | — | — | — | — | + | + | + | ± | — | — | + | + | · | ± | — | — | — | — | — | — |
| 343 | + | + | + | · | · | · | · | ± | — | · | · | — | — | — | — | — | + | + | ± | — | — | — | + | + | · | — | — | — | — | — | — | — |
| 339 | + | + | + | · | · | + | · | ± | — | ± | · | — | — | — | — | — | + | + | + | ± | — | — | + | + | · | — | — | — | — | — | — | — |
| 337 | + | + | + | · | · | + | · | ± | — | · | · | — | — | — | — | — | + | + | + | — | — | — | + | + | · | — | — | — | — | — | — | — |
| 346 | + | · | · | · | · | + | + | ± | — | ± | · | — | — | — | — | — | + | + | + | ± | — | — | + | + | · | — | — | — | — | — | — | — |
| 348 | + | · | · | · | · | + | · | ± | — | · | ± | — | — | — | — | — | + | + | ± | — | — | — | + | · | · | — | — | — | — | — | — | — |
| 373 | + | + | + | + | + | + | + | ± | — | + | · | — | — | — | — | — | + | · | · | — | — | — | + | · | · | ± | — | — | — | — | — | — |
| 372 | + | · | · | · | · | + | + | ± | — | + | + | — | — | — | — | — | + | + | + | ± | — | — | + | + | ± | — | — | — | — | — | — | — |
| 371 | + | · | · | · | · | + | + | ± | — | + | ± | — | — | — | — | — | + | · | · | — | — | — | + | · | · | — | — | — | — | — | — | — |
| 370 | + | + | + | + | + | + | + | ± | — | + | ± | — | — | — | — | — | + | + | + | ± | — | — | + | · | ± | — | — | — | — | — | — | — |
| Para "B" | + | + | + | ± | — | — | — | — | — | + | + | + | + | — | — | — | + | — | — | — | — | — | ± | — | — | — | — | — | — | — | — | — |
| Para "A" | + | — | — | — | — | — | — | — | — | — | — | — | — | + | + | + | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| B. typhosus* | + | + | + | + | + | + | ± | — | — | + | + | ± | — | + | — | — | + | + | + | + | ± | — | + | + | + | + | + | ± | — | — | — | — |

* Rawling's.

By November 9, fifty-one cases of sickness clinically diagnosed as typhoid had been reported to the local health officer. State medical inspectors visited the home of each of the sick and made careful inquiry concerning the different sources of food and drink. Aside from one patient, all of the patients had used milk from this one distributor. It was also found that all frequently, or regularly, drank raw milk.

Of a total of about 400 families furnished milk by the distributor, aside from restaurants and soft drink stands, forty-five families were invaded by the disease. Information proved conclusively that the epidemic originated from the milk supply, which had been contaminated at the bottling station. Whether the contamination came from the sickroom of the son, Clarence Stitt, or was transmitted by the distributor, Charles Stitt, could not be determined.

After free antityphoid vaccination was started by the city, a total of 1,500 persons was immunized. No cases developed among the vaccinated persons, and no one who had been immunized previous to the epidemic contracted typhoid. Infection by contact was prevented except in one family.

As Clarence Stitt, the son, was convalescing from a diagnosed case of typhoid, there was every reason to believe he might be an active carrier. Repeated examinations of the feces failed to recover the organism.

Mrs. Charles Stitt had taken care of Clarence Stitt during the early period of convalescence and, as she gave a positive Widal reaction, three specimens of feces were examined, as she might reasonably have become a contact carrier. Although George Stitt, another son, had had nothing to do with the case, his positive Widal reactions warranted three examinations of the feces, all of which were negative.

Ralph Stitt and Bernard Stitt both gave negative Widal reactions; but, as shown by Krumwiede,[2] contact carriers handling food, who show negative Widal reactions, should be given just as much consideration as those showing positive Widal reactions. Both of these cases returned negative results on repeated examinations of the stools.

2. Bolduan, C. F., and Krumwiede, Charles, Jr.: Milk-Borne Outbreak of Typhoid Fever Associated with a Chronic and Normal or Contact Carrier of B. Typhosus, Pub. Health Rep. 32: 1755 (Oct. 19) 1917.

*Bacillus typhosus* was isolated from two specimens of feces submitted from Charles Stitt, the distributor, who had had an undiagnosed illness between September 25 and October 5—or about two weeks previous to the onset of the first case of typhoid in the city of Hillsdale. The medical inspector submitted forty-six specimens of feces for diagnoses from patients in Hillsdale, *Bacillus typhosus* being recovered from twenty-five of the forty-six specimens. Two blood cultures were submitted, one of which was positive. The isolation of *Bacillus typhosus* from feces was accomplished by a slight modification of the usual technic of the bureau of laboratories.

### TECHNIC OF ISOLATION

Samples of stools to be examined were rubbed up in 1 per cent. peptone solution (approximately a 1:15 dilution of formed stool). The suspension was allowed to settle from fifteen to twenty minutes. One loopful of suspension was transferred to 0.4 c. c. of brilliant green plate.[3] The mediums contained 0.4 c. c. of a 1 per cent. solution of brilliant green per hundred cubic centimeters of agar. This standard dilution of dye[4] was determined by streaking various concentrations of brilliant green agar plates with feces from three cases of typhoid and three freshly isolated cultures mixed with normal feces. Four-tenths c. c. of the dye solution gave the greatest inhibition of fecal flora other than typhoid and an optimum growth of *Bacillus typhosus*. The diluted feces were spread on the green dye plates with bent nichrome wire; then without flaming the spreader Endo's plates were inoculated.

After incubating these plates for from eighteen to twenty-four hours, they were studied for typhoid-like colonies. When suspicious colonies were observed, a tentative macroscopic slide agglutination was made.[5] At the same time, Russell's triple sugar medium (Andrade indicator) was inoculated. These were incubated over night and the growth studied for sugar reactions, morphology, motility, staining properties and specific agglutinins.

### AGGLUTINATION TEST

A suspension of 0.5 c.c. of culture in physiologic sodium chlorid solution and 0.5 c.c. of the various dilutions of serum were incubated for two hours at 56 C., placed in the icebox for ten minutes and agglutinations recorded. Table 2 gives the dilutions of diagnostic serums and the results of the tests. The twenty cultures tabulated were morphologically and culturally typhoid bacilli, and gave typical sugar reactions on Russell's mediums. The absorption test was applied to the cultures isolated to obviate any possibility of cross agglutination of dissimilar strains and to eliminate any "out" strain of *B. typhosus*.

### AGGLUTININ ABSORPTION TEST

Culture from twenty-four hour growth on agar slant was suspended in physiologic sodium chlorid solution and centrifuged. The supernatant salt solution was pipetted off, and the carrier's serum, diluted 1:20, was added to the packed organisms. The organisms were thoroughly mixed with the serum, and the emulsion incubated in water bath at 56 C. for two hours, shaking for more than ten minutes. At the end of the incubation period, the emulsion was placed in the icebox overnight to complete the absorption of the specific agglutinins. Agglutinations were set up with the clear serum in the same manner as in the direct agglutinations. For comparison, there was employed in this study the stock cultures of paratyphosus A and B, and Rawling's strain of *B. typhosus*. The results of the tests appear in the table with the direct agglutinations.

As there was no agglutination of the organisms isolated from various clinical cases of typhoid with the absorbed serum of Charles Stitt, there is considerable evidence that it was the same strain of organism recovered from the clinical cases as that recovered from the feces of Charles Stitt.

Table 3 shows the sugar reactions of the Hillsdale strain, compared with a culture isolated from a patient in Jackson, Mich., and the stock Rawling's strain, shows that the Hillsdale strain is a rapid xylose fermenter.

TABLE 3.—SUGAR REACTIONS OF HILLSDALE STRAIN, COMPARED WITH CULTURE FROM JACKSON, MICH., PATIENT AND STOCK RAWLING'S STRAIN

| | Fermentative Reactions | | |
|---|---|---|---|
| Culture | Maltose | Mannite | Xylose |
| Charles Stitt | + | + | + |
| F 357 | + | + | + |
| F 348 | + | + | + |
| F 340 | + | + | + |
| F 324 | + | + | + |
| F 366 | + | + | + |
| F 331 | + | + | + |
| F 367 | + | + | + |
| F 307 | + | + | + |
| F 326 | + | + | + |
| F 290 | + | + | + |
| F 370 | + | + | + |
| F 323 | + | + | + |
| F 371 | + | + | + |
| F 322 | + | + | + |
| F 372 | + | + | + |
| F 338 | + | + | + |
| F 318 | + | + | + |
| F 373 | + | + | + |
| F 339 | + | + | + |
| F 347 | + | + | + |
| BC 137 (Rawling's) | + | + | + |
| BC 140 (Jackson) | + | + | + |
| B. typhosus (Rawling's) | + | + | — |

### CONCLUSIONS

The Hillsdale epidemic was a milk-borne typhoid fever epidemic, the local health officer failing to stop the sale of the milk after onset of sickness in the family of the milk distributor.

The epidemic was caused by the contact carrier, Charles Stitt, infecting the milk supply.

The organism proved to be a rapid xylose splitter.

Stock vaccine made from Rawling's strain protected. This confirms work reported by Oscar Teague and K. Morishima,[6] indicating that although there is some difference in the fermenting power of the strains of organisms there is no variation in the antibodies produced, and the typhoid vaccine protects against this strain as well as the Rawling's strain. The supposed new strain of typhoid which the soldiers acquired in Germany was not in reality a new strain; but the disease in vaccinated soldiers was due to a mass infection breaking down the defenses that had been built up artificially by means of typhoid bacterial vaccine.

3. Krumwiede, Charles, Jr., et al: The Use of Brilliant Green for the Isolation of Typhoid Bacilli from Feces, J. Infect. Dis. **18**: 1 (Jan.) 1916.
4. Krumwiede, Charles, Jr.: J. Infect. Dis. **23**: 275-289 (Sept.) 1918.
5. Krumwiede, Charles, Jr.: J. Immunology **5**: 155 (March) 1920.
6. Teague, O., and Morishima, K.: J. Infect. Dis. **26**: 52 (Jan.) 1920.

**Special Duty of Hospital.**—The paramount special duty of a hospital in order to serve its particular purpose in the large medical development must be to afford its patients the best possible care at the least possible cost in time and money not only to the institution but to the individuals concerned, patients and servants alike.—J. L. Yates, *Hospital Progr.*, November, 1921, p. 417.

# TOXIC PROTEIN END-PRODUCTS, THE CAUSE OF SO-CALLED INANITION FEVER

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AND
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The cause of inanition fever has been a fertile subject for discussion. Among the most prominent ones presented have been water loss, products of broken-down systemic tissue, septicemia, a sensitive thermocenter, starvation and intestinal toxins.

We claim that the cause is the toxic protein end-products, developed in the intestinal canal. The development of these toxins is due to the lack of ingestion of the carbohydrates dextrine and lactose, which produce an aciduric state, a soil unfavorable for the development of proteolysis, in other words, a soil unfavorable to the development of toxic protein end-products. Time and experience will prove whether our assumptions are correct.

Let us briefly discuss these causes.

As regards water loss, this fever occurs in some cases in which all such water loss has been abundantly replaced. Not infrequently patients who have suffered a marked water loss have shown subnormal temperatures.

As regards the toxicity of the products of broken-down systemic tissue, we cannot find that it has ever been proved. On the other hand, were the fever due to such destructive tissue change, its course should not be so short, its relief should not so quickly respond to appropriate treatment, and its prevention should not be so simple.

As regards septicemia, we know of no blood cultures that have yielded any proof except in real septicemia. A septicemia of the intensity occasionally seen does not yield so readily to simple dietetic measures.

As regards the sensitiveness of the thermocenter, it is only a contributing cause.

Starvation and intestinal toxins will be discussed under one heading, since they are so interdependent in inanition fever.

The lack of food plays an important rôle in the development of inanition fever. The soil being fertile, the putrefactive bacteria, and consequently their toxins, develop rapidly. As soon as the toxins are absorbed, the constitutional symptoms arise. We claim that it is not the starvation, per se, which is the cause of the fever, but that it is the intestinal toxins, which develop because there is no food. It is generally agreed that the character of the food elements is of the greatest importance to influence the intestinal flora; that the intestinal state depends on whether they are fermentative or putrefactive; and that if they are putrefactive, the intestinal toxins, consequently produced, are the cause of the constitutional symptoms. We can thus see why a modified milk mixture, high in proteins and low in dextrin or lactose, has seemed at times to have augmented the symptoms of inanition fever.

The true meconium stool is dark, nearly black, thickly viscid and odorless. There is only one such stool; possibly there may be two. Laboratory tests show them to be practically sterile and to be a poor culture medium. Owing to intestinal secretions, which are soon poured out, there is a resulting change in character, and the stools become brownish, less viscid and may have an odor. Laboratory tests of these stools have shown them to be fertile soil for putrefactive bacteria. There consequently should be a differentiation between the true meconium stool and the so-called starvation stool.

For the past year or two we have been taking cultures of the stools of the new-born babies at the Children's Hospital and elsewhere, and we have been greatly surprised at the intensity of the proteolytic reactions. Not infrequently the reaction has been in definite ratio to the height of the fever.

It is well understood that the gastro-intestinal canal of the new-born is sterile at birth, and that bacteria gain entrance very rapidly, especially by the route of the mouth.

Inanition fever develops about the third to the fifth day, sometimes sooner, and runs a short course of a few days. This period after birth provides an abundance of time for the proteolytic bacteria to thrive and multiply; and, if they are active and have sufficient fertile soil, they may produce toxic products, which, when absorbed, could cause constitutional symptoms.

We noted that fewer of the babies suffered from inanition, or starvation fever, whose mothers' breasts functioned early and well. While this might seem to substantiate the idea of starvation fever, it does not prove it, as we have explained.

To learn whether or not a change of intestinal flora, so easily brought about at this age, would prevent the occurrence of fever, we prescribed for all the babies, commencing a few hours after birth, a dextrinized sugar or lactose solution. The result was that we failed by culture tests, made in a large number of cases, to obtain any marked response to the proteolytic flora on the third and fourth day, the days on which inanition fever should make its appearance. Further, since we started this procedure, there has not been a single case of definite rise of temperature which could not be traced to something else. Again, in those cases not so early treated, if we have given the carbohydrates mentioned, we have secured an amelioration of the symptoms as soon as the carbohydrates reached the intestines in sufficient amount.

The general practitioner still gives castor oil to clear the gastro-intestinal canal of some toxic or offending substance, and not infrequently secures good results.

Breast milk prevents proteolysis because of its high lactose and low, easily digested protein; and the dominating flora of the breast-fed is *Bacillus bifidus*. Modified cow's milk is much less efficient in producing an aciduric flora. To do so it must contain a percentage of casein too low to provide a fertile soil for proteolysis, and a percentage of lactose or dextrin sufficiently high to insure an aciduric flora. The flora, under an appropriate modification of cow's milk, would be *Bacillus acidophilis*.

Both of these flora are marked antagonists to the development of proteolysis, and hence to the production of protein toxic end-products.

There are only two references in literature that we can find which in the least approach our ideas of the basis cause of inanition fever, and they merely give a suggestion along the line we consider correct.

Among the causes given by von Reuss are "the replacement of the meconium flora by the milk flora in the intestine," and, further, "the irritant effect of bacterial products of decomposition or toxins." He fails to mention the kind of milk needed to change the

intestinal flora quickly, and merely suggests the presence of toxins, failing to mention their origin.

In discussing "intestinal toxemia of the new-born," Morse and Talbot approach closer to our views, particularly when they come to the paragraph on the treatment of the condition mentioned above. They differentiate a severe form of intestinal toxemia from inanition fever, while we consider that all these cases are the same except in degree. In their paragraph on the treatment of intestinal toxemias they present ideas which correspond more definitely and more closely with our conclusions than any one else. They state that "it is important to give a high percentage of milk sugar in order to change the bacterial activity from the proteolytic to the fermentative type."

Because of its chemical combination it is self-evident that the best food to prevent and also to cure inanition fever is breast milk. Next stands lactose solutions, or dextrine solutions in the form of dextrimaltose.

We consequently draw the conclusion that these fevers are due to proteolytic toxins, and can be easily forestalled by the early administration of the carbohydrates dextrin and lactose. These are food elements which favor the production of innocuous aciduric flora, which in turn inhibit the multiplication of the proteolytic flora, and thereby prevent the formation of toxic protein end-products.

We suggest that the vague term "inanition fever" be discarded, and that "proteolytic intestinal toxemia of the new-born" be used in its place.

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# VENIPUNCTURE OF THE SUPERIOR LONGITUDINAL SINUS IN THE NEW-BORN

## RESULTS IN TWO HUNDRED AND THIRTY-ONE CASES *

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From the standpoint of the clinical investigator, the superior longitudinal sinus has become, in the last few years, the most important blood vessel in the baby's body. Herophilus, who lived soon after the birth of Christ, was the first to draw attention to the cerebral circulation; he noted with accuracy the torcular condition of the sinus in the occipital region. For nearly 1,000 years after, little advance was made in brain anatomy, until about the middle of the sixteenth century, when Vesalius attempted a description and illustrated the brain and its blood supply, which have descended to us. During the middle of the seventeenth century, Willis worked on the arterial supply and in 1665 described the circle of Willis. Later in the eighteenth century, the blood supply of the meninges was described by Ruysch. It was not until 1898 that Marfan, a French pediatrician, described a method of entering the longitudinal sinus through the anterior fontanel. This method, however, was first used in this country about 1915. During this year and the following two or three years, extensive work was done by Shaw,[1] Helmholz, Dunn, Fischer [2] and Tarr.[3]

I am reporting this series of 231 operations in the hope that it will be of interest to the medical profession in general, and also because there are several points of importance which can be determined only by a large series of cases. Tarr has reported 207 operations in which the sinus was punctured before the eighteenth month. In my series the puncture was made on or before the seventh day of life.

In our series the head was not shaved, and iodin was not used. The area over the anterior fontanel was washed with 70 per cent. alcohol. The posterior angle of the anterior fontanel was selected as the most desired location, because here the sinus is about $\frac{3}{32}$ inch (2.4 mm.) in diameter. The needles which work best were short beveled, at an angle of about 45 degrees, with a large bore No. 18. No shoulder was used, because it was frequently found that both coats of the sinus were punctured, the walls of which are so easily compressible that it was only when the needle was slightly withdrawn that blood was obtained. An assistant firmly holds the baby's head, when the operator inserts the needle at a slight angle. About $\frac{1}{4}$ inch (6.35 mm.) is the usual distance to the sinus from the skin. The blood is usually withdrawn easily. In the 231 operations we have failed to obtain blood only three times.

Three patients were examined postmortem by Dr. James E. Davis, pathologist. Macroscopically they showed no injury whatsoever to the sinus, no clot formation and no evidence of degenerated brain tissue. One died of congenital syphilis; one was born prematurely at 6 months and 3 weeks, and died at 7 months and 1 week. These two belonged to the series of seventy-seven new-born babies. The third was a foundling brought to the hospital in very poor condition by a policeman. For four days it was given an intrasinous treatment of 2 per cent. sodium bicarbonate and physiologic sodium chlorid solution. On the fourth day, 6 ounces (180 c.c.) of this solution was injected intrasinously, and the baby died next day of acute dilatation of the heart. One patient was given a 5 per cent. glucose solution successfully. Five patients were given 2 per cent. sodium bicarbonate and physiologic sodium chlorid solution successfully. We have given from 2 to 6 ounces (60 to 180 c.c.) of fluid intrasinously with success. No arsphenamin was given. Blood was taken for Wassermann tests in the seventy-seven cases within the first twenty-four hours, on the third day and on the seventh day, a total of 231 Wassermann tests.

Fischer has introduced arsphenamin through the sinus in more than fifty cases without any bad results. Lowenburg [4] reports thirteen cases in which blood transfusion has been successful. One was a new-born babe, one a 2 months infant. He uses needles one-eighth inch (3.17 mm.) in bore.

Our cases were watched daily for an average of about six months and no untoward results were noted. Occasionally slight pressure must be exerted over the puncture site for about ten or twelve minutes to stop hemorrhage. I know of no case in which bleeding was not entirely stopped by pressure for fifteen minutes.

No infections were encountered, and constitutional symptoms, such as shock, have never been reported to my knowledge. There was no apparent effect on the growth and the nutrition or the mental condition of the baby. We have been unable to take blood from the babies while they slept, but quite a few barely

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* From the obstetric clinic, Woman's Hospital.
* Read before the Wayne County Medical Society, May 15, 1921.

1. Shaw, H. L. K.: Albany M. Ann. **40**: 74 (March) 1919.
2. Fischer, L.: New York State J. Med. **19**: 183 (May) 1919.
3. Tarr, E. M.: Canada M. A. J. **7**: 226 (March) 1917; Arch. Pediat. **36**: 72 (Feb.) 1919.
4. Lowenburg, Harry: Arch. Pediat. **38**: 217 (April) 1921.

rouse from their sleep and immediately return to sleep after the blood has been taken.

SUMMARY

In 231 superior longitudinal sinus venipunctures there were no untoward results. This method is therefore recommended as the best of any so far reported for obtaining blood or giving intravenous medication to infants.

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## PHENOLPHTHALEIN DERMATITIS *

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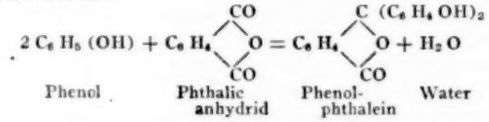
The first instance of an eruption which was apparently caused by the use of phenolphthalein as a laxative was reported by Abramowitz [1] in 1918. Since then, cases have been reported by Howard Fox, Rosen, Silberstein, Scheer, and Wise. Judging from these few case reports during the last three and one-half years, the condition must be either very uncommon, usually overlooked, or else not regarded of sufficient importance to report.

Phenolphthalein has been generally regarded as a drug entirely lacking in toxic effects. The usual laxative dose is 2½ grains (0.15 gm.). Wood [2] has shown in experiments on dogs that doses which in human beings would be equivalent to from 60 to 100 grains (4 to 6.5 gm.) were quite harmless, and Abel and Rowntree [3] gave animals enormous doses intravenously without ill effects. Orland [4] reported the case of a 3 year old child who took 30 grains (2 gm.) by mouth without showing any toxic symptoms. Hydrick [5] reported albuminuria following the ingestion of from 1 to 2 grains (0.065 to 0.130 gm.) in twenty consecutive tests; but Bastedo [6] has not found a single instance of albuminuria following phenolphthalein in the course of frequent urine examinations during an extensive clinical use of the drug. McWalter [7] failed to detect any untoward symptoms in the administration of more than a thousand doses of phenolphthalein for laxative purposes, the doses ranging from 2 to 6 grains (0.13 to 0.4 gm.) in adults. Many of his patients continued the use of the drug over prolonged periods of time. On the other hand, Rosenstein [8] reports an instance of acute hemorrhagic nephritis which he believes resulted from the use of phenolphthalein. The patient completely recovered in a short time after the drug was discontinued. Fürbringer [9] has written a paper on "Severe Poisoning from Laxative Drops (Phenolphthalein)" which was published in a German periodical during the war, and which is not at present available for review.

Bastedo has frequently found phenolphthalein in the urine after oral administration, its presence being indicated by a pink color in an alkaline reaction. The widely used "phthalein test" of kidney function is based on the retarded elimination in renal disease of phenolsulphonephthalein which has been injected subcutaneously. Bastedo states that no phenol is liberated from phenolphthalein after administration, and that its laxative action is mild, nongriping, and depends on a stimulation of peristalsis, and, to some extent, on the prevention of absorption. Cushny [10] says that some of the phenolphthalein is reabsorbed into the blood from the large intestine, carried to the liver and returned to the intestine by way of the bile, so that it acts for several days as a mild aperient, gradually being eliminated in the stools and to a less extent in the urine. "Useful Drugs" [11] (1916) prepared under the direction and supervision of the Council on Pharmacy and Chemistry of the American Medical Association, says, "Phenolphthalein acts as a purgative, but appears to possess no further physiologic action, except that it may cause some irritation of the rectum and lower bowel."

Phenolphthalein, or dihydroxyphthalophenon, is a synthetic drug which, according to Cohen,[12] can be produced when two molecules of phenol and one molecule of phthalic anhydrid are heated together at 115 C., with the addition of strong sulphuric acid. The reaction is:




Phenolphthalein is closely related to triphenylmethane, which is the mother substance of a great variety of dyes.

In three of the six cases previously described and in the new case reported herewith, the eruption has been of the same type, a sort of erythema perstans in which wheal-like lesions of a pink, yellow, or gray have appeared rather suddenly and have persisted unchanged for weeks or months, usually disappearing soon after the administration of phenolphthalein has been stopped. Itching has frequently been annoying. No systemic symptoms have been reported.

The exact significance of this fairly characteristic eruption which only rarely follows the administration of phenolphthalein is not clear. It may be nothing more than an individual idiosyncrasy such as some persons exhibit toward quinin, iodids, etc. The subject merits further investigation, however, and no opportunity should be lost for studying and reporting cases whenever they can be found.

Some of the proprietary medicines [13] which contain phenolphthalein are: A. D. S. Fruit Laxative, Agar-Lac, Alophen Pills, Analax, Auto-Lax Chocolates, Bisuroids, Bonalax, Citrolax, Dilaxin Pills, Ex-Lax, Exurgine, Figuroids, Joy Powder and Joy Tablets, Kellogg's Canitone Wafers, Laxaphen, Laxatol, Laxen, Laxine, Laxoin, Laxothalen Tablets, Lepsolets, Liophtal, Lux Cold Tablets, Marmola Prescription Tablets, Nurito, Partola, Pearl La Sage Complexion Treatment, Po-Do-Lax, Probilin Pills, Prunoids, Purgen, Phecolax, Phecozymes, Phenalein, Phenaloin, Phenaloin Tablets, Phenolax Wafers, Rexall Orderlies, Sofose, Tanlac Laxative Tablets, Taurocol, Veracolate and Woods' C Treatment for the Tobacco Habit. There are probably other proprietary medicines on the market which also contain phenolphthalein.

* From the Department of Dermatology, White Memorial Hospital.

1. Abramowitz, E. W.: J. Cut. Dis. **36**: 11 (Jan.) 1918.
2. Wood, H. C., Jr.: Rep. Philadelphia Hosp. **7**: 183, 1909.
3. Abel and Rowntree: J. Pharm. & Exper. Therap. **1**: 262, 1909-1910.
4. Orland, F.: Med. Klin. **9**: 257, 1913.
5. Hydrick: Proc. Am. Soc. Biol. Chemists, 1914, p. 36.
6. Bastedo, W. A.: Materia Medica, Pharmacology, Therapeutics, Ed. 2, Philadelphia, W. B. Saunders Company, 1919, p. 134.
7. McWalter, J. C.: Lancet **2**: 1141 (Nov. 20) 1915.
8. Rosenstein, P.: München. med. Wchnschr. **67**: 263 (Feb. 27) 1920; abstr. J. A. M. A. **75**: 1168 (Oct. 23) 1920.
9. Fürbringer: Deutsch. med. Wchnschr. **43**: 842, 1917.
10. Cushny, A. R.: A Textbook of Pharmacology and Therapeutics, Ed. 6, Philadelphia, Lea & Febiger, 1915, p. 91.
11. Useful Drugs, Chicago, American Medical Association, 1916, p. 106.
12. Cohen: Theoretical Organic Chemistry, London, the Macmillan Company, 1913, p. 518.
13. Street, J. P.: The Composition of Certain Patent and Proprietary Medicines, Chicago, American Medical Association, 1917.

Two of the preparations which appear in this list are mentioned specifically in the following case reports. Their formulas have been determined to be: Phenolax Wafers:[14] phenolphthalein, 0.98 grain; sugars, 3.35 grains; starch, talc and aromatics, 0.43 grain per wafer (Connecticut Report 1915, p. 385); Ex-Lax:[15] phenolphthalein, 9.67 per cent.; water, 1.03 per cent.; ash, 1.12 per cent.; sucrose, 44.03 per cent.; starch, 2.9 per cent.; ether extract, 34.92 per cent.; chocolate, present (Connecticut Report, 1916, p. 276).

## REPORT OF CASES

CASE 1 (Reported by Abramowitz[1]).—Mrs. J. T., aged 27, Russian, was seen in the Vanderbilt Clinic, New York. The history prior to the present illness was unimportant; there had been no previous skin trouble. The total duration of the present illness was one and one-half years with periods of freedom, but with frequent relapses, accompanied by itching. It was definitely ascertained that six months before and six weeks before, immediately after taking a proprietary medicine containing phenolphthalein, the eruption broke out anew. There was no history of the use of any other drugs. Examination revealed lesions distributed about the mouth, over the chest, arms, thighs and back. They were roughly oval or circular; they varied in size from that of a quarter to that of a half-dollar, and they were slightly elevated, with smooth surfaces free from scales, and with somewhat thickened but ill defined margins. The lesions were brown; some of the old spots which had flared up during the recent relapse were of a red-violet tint. Nothing abnormal was found in a general physical examination. The urine, stools and Wassermann test were all negative. A microscopic blood examination was negative except for a very slight anemia. A histopathologic examination of a section of skin taken from a purplish pink lesion of the posterior axillary fold showed a considerable deposit of pigment as the most striking change. This pigment was in the form of dark brown granules contained in irregularly pear-shaped cells in perivascular zones. They did not give the blue reaction in Perles' stain for iron. Other changes were: a loosely laminated horny layer; a moderate parenchymatous edema of the rete, with an increase in size of the rete pegs, some of which were confluent; a very little vascular dilatation, but some endothelial proliferation and hyperplasia; a moderate perivascular collection of round cells, mostly in the papillary and subpapillary bodies. The collagen and the elastica were normal.

The same patient was shown by Dr. Howard Fox[16] before the Manhatten Dermatological Society, a number of weeks later. The following additional information was obtained: A minute or two before each of the last two attacks, the patient had taken a single "Ex-Lax" tablet. She did not remember whether earlier attacks had followed the taking of medicine. After the first attack, the lesions disappeared entirely in two days; but after subsequent attacks, pigmented spots remained and had not disappeared up to the time of presentation. On examination, she presented about sixty dark brownish, rounded macules, varying in size from that of a bean to that of a silver dollar. There was no infiltration, no evidence of scratching, no oozing and no anesthesia. Some of the spots were smooth, others slightly scaly. There were lesions on the face, neck, arms, forearms, backs of the hands, chest, abdomen and thighs, but they were most abundant on the back. The patient was a decided brunette. It was not possible to produce wheals by friction on the macular lesions. Clinically and histologically, the eruption corresponded to erythema perstans.

By comparing these two descriptions of this patient, made some weeks apart, it will be seen that lesions which formerly were slightly elevated, entirely free from scales, and which varied in color from brown to red-violet, were now flat, slightly scaly in places, and apparently were of a more uniform brown.

14. Street, J. P.: Footnote 13, p. 194.
15. Street, J. P.: Footnote 13, p. 88.
16. Fox, Howard: J. Cut. Dis. **36**: 252 (April) 1918.

CASE 2 (Reported by Rosen[17]).—Mr. R., aged 25, was shown before the Manhatten Dermatological Society. A mildly pruritic eruption on his chest and abdomen had appeared suddenly three days before and had persisted without spreading. Two days before the onset of the eruption, the patient had taken two phenolphthalein tablets for constipation. Examination revealed a vesicopapular eruption involving the front of the entire chest and abdomen. Some of the lesions were hemorrhagic. In the ensuing discussion, some of the members of the society asserted that the eruption bore a slight resemblance to pityriasis rosea.

CASE 3 (Reported by Silberstein[18]).—Silberstein, himself, took a single dose of a phenolphthalein purgative, after which plaques, suggesting cancer, developed on his tongue, forcing him to give up smoking. A year later, he took another dose of the same medicine and developed a painful stomatitis with herpes on the genitals.

CASE 4 (Reported by Silberstein[18]).—A woman consulted him recently for general lassitude, loss of appetite, and a strip of ecchymosis in the conjunctiva of both eyes. She had taken seven tablets of a phenolphthalein preparation.

CASE 5 (Reported by Wise[19]).—Mrs. E. A., presented before the New York Dermatological Society, was suffering from a fresh outbreak of an eruption which had recurred at intervals of from one to four weeks during the last three years. The forehead, face, shoulders, axillae, arms and thigh showed a number of macular and urticarial lesions, from 1 to 3 cm. in diameter, bluish red, and suggesting erythema perstans. Several days later, when the eruption had subsided, she was given two 5-grain tablets of phenolphthalein, and the following day many of the spots had appeared in all their intensity.

CASE 6 (Reported by Sheer[20]).—A boy, aged 8 years, shown before the Section on Dermatology and Syphilis of the New York Academy of Medicine, had been given "Ex-Lax" at various times during the last two years, up till six months before presentation. The eruption, which had been present about two years, first appeared about two weeks after the administration of diphtheria antitoxin. The older sister, who gave the history, was not very clear concerning some of the details. Examination disclosed about twenty-four lesions, distributed over the trunk and extremities. They were oval and circular macules varying in size from that of a dime to that of a silver dollar, and were of a peculiar slate color or blue-gray, which did not disappear on pressure. At an earlier stage, the lesions were said to have been red. The intensity of the color had varied from time to time; but the discloration had never disappeared.

CASE 7 (Outpatient No. 23945, author's case).—*History.*—Mrs. E. J., aged 27, housewife, native of Kansas, referred to the Dermatological Clinic of the White Memorial Hospital from the Medical Clinic, June 17, 1921, had been troubled with constipation as long as she could remember. During the last five months she had taken one "Phenolax Wafer" every night, with the exception of two weeks, about two months before. During these five months the bowels had moved once or twice a day, and except for the eruption on her face, she considered herself to be in excellent physical condition.

The eruption began two or three weeks after she had been taking the "Phenolax Wafers." It had remained constantly present until two months before, when she discontinued the tablets, and it began again two weeks later when she resumed them, since when it had been present, becoming much more pronounced during the last ten days. Itching had been rather troublesome since the onset, but more particularly so during the last ten days. The first lesion appeared rather suddenly on the right cheek in the form of a flat-topped elevation, about the size of the little fingernail, at first pink, but, in the course of several days, assuming a yellow tinge which had remained. Other smaller lesions had appeared at various times since then on the same cheek, on the other cheek, and on the

17. Rosen, I.: Dermatitis Medicamentosa, Arch. Dermat. & Syph. **1**: 355 (March) 1920.
18. Silberstein, L.: Therap. Halbmonatsh., Berlin **34**: 306 (June 1) 1920; abstr., J. A. M. A. **75**: 354 (July 31) 1920.
19. Wise, Fred: Phenolphthalein Eruption, Arch. Dermat. & Syph. **3**: 200 (Feb.) 1921.
20. Scheer: Dermatitis Medicamentosa, Arch. Dermat. & Syph. **3**: 704 (May) 1921.

chin, but nowhere else. Unlike the ordinary transitory urticarial wheals, these lesions had remained for weeks or months after they had once appeared, maintaining about the same size, changing in color from a pink or red at first to a yellow after a few days. The tops of the lesions had been scaly at times, but had never been moist or crusted. New lesions had frequently been macular at first, with little or no elevation, the wheal-like character developing in the course of several days and usually remaining. During the two weeks, two months before, when the patient discontinued the "Phenolax Wafers," all the lesions lost their elevation and became macular, but the yellow color remained. On resuming the medicine, the lesions again became elevated. There had been no systemic symptoms of any kind during these five months; in fact, the patient had felt better than usual.

During the last seven or eight years, the patient had noticed that after eating strawberries, peaches, and certain other fresh fruits, an itchy, transitory, urticaria-like eruption appeared on the face, but nowhere else on the body, although the body might itch. These lesions had never lasted longer than from a few hours to several days, and according to the patient, had never looked at all like the present eruption. No eruption followed if the fruit was cooked. The patient denied having eaten any fresh fruit during the last five months.

*Examination.*—This revealed an eruption which was confined to the cheeks and chin, and which consisted of possibly two dozen lesions, varying in size from one the size of a pinhead to one as large as the little fingernail, which the patient pointed out as being the first lesion to appear. The lesions were discrete and confluent. They resembled wheals in that they were elevated and flat-topped; but unlike wheals, they were a distinct dirty yellow in color. Some of the smaller lesions looked not unlike the eruption seen in verruca plana juvenilis. There was a mild degree of scaling.

*Course.*—The patient was instructed to discontinue taking the "Phenolax Wafers." The next morning there was a noticeable improvement; the lesions were flatter and the itching was less intense. Three days after discontinuing the medicine, there were practically no elevated lesions; but on the right cheek, a pale yellow discoloration the size of the little fingernail marked the site of the largest and oldest lesion. There were several smaller, faintly discernible yellow spots. More scaling was present than on the previous visit. Itching was entirely absent. Two 1-grain tablets of phenolphthalein were administered by mouth, without any recurrence of symptoms, either immediately after or within the next few days. For the sake of confirmatory evidence, the patient was urged to take a larger dose of phenolphthalein with the hope of causing a recurrence of the eruption; but she was too well satisfied with her relief from the itching to cooperate in the plan. In view of the fact that all of the lesions were on the face, a biopsy could not be obtained.

A chemical examination of the blood on the fourth day after the administration of "Phenolax Wafers" had been stopped showed no evidence of renal insufficiency. The nonprotein nitrogen was 26 mg. per hundred cubic centimeters of blood (normal, from 25 to 35 mg.); the uric acid, 2.8 mg. per hundred cubic centimeters of blood (normal, from 1 to 3 mg.); the creatinin, 1.1 mg. per hundred cubic centimeters of blood (normal, from 0.7 to 1.3 mg.). A week after the patient was first seen, the urine was negative for albumin and sugar. A complete routine urine examination six months ago, before beginning the use of phenolphthalein, was negative. Nothing abnormal was found in the general physical examination.

### SUMMARY

Most textbooks and most physicians regard phenolphthalein as a laxative which is entirely lacking in toxic properties.

In seven cases here reported an eruption of the skin has been associated with the oral administration of phenolphthalein for laxative purposes.

The eruption in four of the seven cases has been of the same type, corresponding clinically, and in one case in which a biopsy was obtained, microscopically, to erythema perstans.

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# THE RELIEF OF PARTIAL OR COMPLETE ANTERIOR STAPHYLOMA

## DESCRIPTION OF OPERATION *

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For the relief of partial staphyloma the end-result aimed at is twofold: first the removal of the deformity; and second, improvement in sight. The latter is gained by an iridectomy, usually and preferably, performed after the staphylectomy. In cases of total, or almost total, staphyloma, besides the removal of the deformity, the protrusion often being so great as to prevent closure of the lids, the object sought is also the retention of the globe within its orbit and the obtaining of a movable stump over which a prothesis may be worn. The operation of evisceration for such cases, while generally considered safer as far as future after-effects are concerned, and while it also leaves a better stump than enucleation, cannot be compared in cosmetic results with a good operation for total staphyloma. Such an operation also does away with the necessity of an insertion of a ball or other foreign body within the globe.

### HISTOLOGY

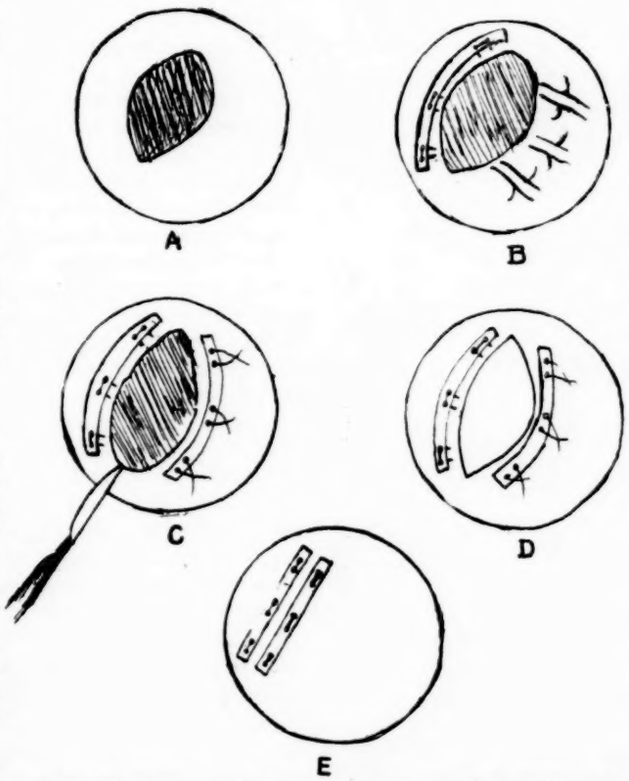
In considering any operative procedure in these cases, the nature and histology of a staphyloma must be borne in mind. Staphyloma does not consist of corneal tissue, but is really cicatricial iris tissue, the cornea having perforated at some previous time, the iris filling the gap and eventually healing. In some cases, this scar tissue is extremely thin; in other cases, it is quite thick. It is necessary, in my opinion, in order to get healthy union, to remove all of this cicatricial tissue and obtain union between healthy or fairly healthy cut surfaces of the cornea. In methods of operation previously suggested, such as that described by Ziegler,[1] who proposed a trefoil keratectomy, and in the similar method of Attias,[2] no definite statement is made as to the amount of tissue removed; but they seem to have been successful in obtaining a healthy flat scar. Nevertheless, I wish to lay stress on the removal of all scar tissue and the insertion of the sutures in healthy tissue. The amount of tension on these sutures is very great, and the likelihood of their tearing through the cornea is very great. For this reason, a method of suturing, originally suggested by Wiener,[3] was used. This consists of the use of gold strips 1.5 mm. wide, with holes large enough for the passage of the needle, 1 mm. apart.

Such tension sutures are able to withstand almost any amount of pull; and for the purpose of demonstrating this, I made a series of tests on pigs' eyes. The strength of the suture material itself was first determined by means of a recording spring scale such as is used for testing cord and wire. Ordinary black spool silk, such as is sold in the shops, which I have used now for some years in all ophthalmic operations, was used. For light work, such as conjunctival suturing, black spool silk designated as *B*, and for heavier, such as tendon suturing, *D* silk, have been found generally satisfactory. It has found that *B* silk had a tensile strength of

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Ziegler, S. L.: Trefoil or Stellate Keratectomy for Anterior Staphyloma, Tr. Sect. Ophth. A. M. A., 1914, p. 308.
2. Attias: Ophthalmoscope, January, 1914.
3. Wiener, Meyer: A New Operation for Advanced Keratoconus, Tr. Sect. Ophth. A. M. A., 1917, p. 217.

from 3¼ to 4⅛ pounds, the average in a long series being 3⅔ pounds. *C* is no longer made by the manufacturers. The tensile strength of *D* thread varied between 7⅞ and 10 pounds, the average being 8¾ pounds. The tensile strength of *E* thread varied between 9¼ and 14¾ pounds, the average being 12½ pounds. So it would seem possible for an expert fisherman to land a 12½ pound fish, using merely *E* silk for a fishing line. In the experiments with pigs' eyes, only *B* and *D* threads were used. It was found that while the *B* thread had an average tensile strength of 3⅔ pounds, if a loop were inserted through the cornea and traction applied, it invariably pulled through the cornea with a 3 pound pull. The *D* thread with an average strength of 8¾ pounds pulled through the cornea when a traction of from 4½ to 5 pounds was exerted. When the sutures were inserted with the gold strip on the cornea and the loop outside the gold strip with *B* thread, traction caused the *B* thread to break without any apparent effect on the gold strip. When the *D* thread was employed, the gold strips broke at a pull of 9 pounds. It may be concluded, therefore, that in healthy cornea these gold strip tension sutures withstand any reasonable amount of tension.




Steps of operation: *A*, shaded area representing staphyloma; *B*, suture inserted, with one gold strip in place; *C*, both gold strips in place, and knife at point of entrance; *D*, clear area representing excision of staphyloma, and *E*, sutures tied.

### TECHNIC OF OPERATION

*Preliminary Treatment.*—As many of these cases are already the subject of infectious processes such as trachoma or dacryocystitis, these conditions should be cleared up before staphylectomy is performed. In several of the cases in which operation was performed, a tarsal excision was first performed and the trachoma cured before proceeding to the main operation.

*Anesthesia.*—I used general anesthesia in all cases.

*Instruments.*—A speculum, Graefe knife, fixation forceps, pair of small strong scissors, mouse-tooth forceps, iris scissors, needle holder, needles, gold strips and black silk sutures, *B* strength, were required. A spatula and wire loop may be needed.

*Description of Operation.*—The first step in the operation is the insertion of the sutures. A gold strip, a trifle longer than the long axis of the staphyloma, is prepared by passing double armed sutures through the holes. Then each needle is inserted at the limits of the protrusion through the cornea, emerging at the opposite limits of the staphyloma. This is not a simple procedure, because, owing to the opaqueness of the staphyloma, the needle is not visible in its course to the opposite side. However, it has the advantage of inserting the needles through a resisting membrane, whereas if the staphyloma is first excised and the needles inserted later, the cornea must be seized by an instrument, there is increased trauma, and greatly increased danger of extrusion of the vitreous. It may appear to be disadvantageous because of the danger of cutting the sutures in removing the staphyloma; but this is more fanciful than real, as it has not happened once in the series of eighteen cases in which I have operated. The second step is the insertion of a Graefe knife at one extremity of the staphyloma midway between the lines of sutures. The knife is inserted with the edge forward, passes through the long axis of the protrusion, keeping close to its under surface, and emerges at the opposite end. One lip of the wound is then seized by the mouse-tooth forceps, and with small scissors, such as the Stevens scissors, half of the staphyloma is excised. The same procedure is followed with the other half. If the lens appears or extrudes, it is removed. The sutures are then tied over another gold strip. The performance of an iridectomy for improvement of vision is best postponed until after healing has occurred. Sutures are removed in eight days.

### COMMENT

I have used a similar procedure in cases of central recent perforating ulcer of the cornea as soon as the eye had become quiet. The course of such cases if left alone is for the prolapsed iris to heal and form scar tissue and become staphylomatous. In Egypt, the common procedure of the surgeons in such cases is to perform an iridectomy, then slit up the prolapsed iris with a Graefe knife, and trust to the formation of a flat scar. In two cases, I have inserted the gold strip sutures as previously described, then excised the prolapsed iris, and at a later date, after union had taken place, performed an iridectomy with excellent results in both cases.

In the year 1919 and part of 1920, which period I spent in Syria, eighteen operations for the removal of partial or total staphyloma were performed with uniformly excellent results. In only two cases of total staphyloma was vitreous lost. In one of them there was considerable shrinkage of the bulb, but a very serviceable mobile ball was left over which a prosthesis was worn with comfort and excellent cosmetic result.

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**Philippines Need More Doctors.**—The total mortality in the Philippines is 26 per thousand as against 13 per thousand in other countries. The infant mortality in this country is at present reduced to 297.90 per thousand as against 100 per thousand in other countries. The mortality from typhoid fever is 32 per hundred thousand while in New York it is 3.82 per hundred thousand. Death from tuberculosis is 504 per hundred thousand as against 172 per hundred thousand in New York. We have at present 969 physicians in the Philippines; that is, one physician for each 11,000 inhabitants. It is estimated that a population, to be safe regarding health, should have at least one doctor for each 3,000 inhabitants. Therefore, about 3,000 physicians are needed for the 10,000,000 population.—José Albert, *J. Philippine Islands M. Assn.* **1**:162 (July-August) 1921.

# A DEPARTURE IN HOSPITALS: THE NATIONAL HOSPITAL FOR SPEECH DISORDERS*

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As far back as we have any history there have been physicians, and we know that for at least a thousand years there have been persons with impediments in their speech—for are they not mentioned in the Bible, in both the Old and New Testaments, in Isaiah, in Saint Mark, and in other places?

From that time on, scientific men have considered and written about defective speech; but, strange as it may seem, it did not receive the attention it deserved from the medical profession, and even now, when specialism is the outcome of progressive medicine, it is still a neglected specialty.

In the field of defective speech in Europe, before the war, Prof. Herman Gutzman was the outstanding figure. In our country, for years, the late Hudson MacKuen of Philadelphia was a recognized authority. Besides these leaders, there have been others, comparatively recently, who have done good work along analytic lines; but it was not generally realized that a person who suffered from a speech disorder was just as much entitled to hospital care as one who, for example, suffered from eye, ear, nose or throat trouble.

While we have eye hospitals, nose and throat hospitals, skin and cancer hospitals, and numberless special institutions, we did not have one general specialized voice and speech hospital in the entire United States: by that I mean a hospital devoted solely to the cure of patients suffering from various disorders of voice and speech.

The natural outcome of such a condition—very few men interested in the subject and no special hospitals—compelled that vast army of sufferers to look elsewhere for help. Consequently, it was the same as in the old days when venereal diseases were not taken largely into consideration, and those suffering were treated through advertisements in drug stores, museums and other places, by people in all walks of life.

The defective speech sufferers have been and still are going through a similar process. They have been receiving courses of treatment from schoolteachers, Christian scientists, osteopaths, and the very latest, chiropractors. For instance, a chiropractor professes to cure a stutterer by twisting his neck in single $2 treatments; or he twists it by the case for from $50 to $100, but to no avail. With it all, those having speech trouble still carry their burden and continue to suffer.

These prevailing conditions demonstrated only too clearly for many years the ever growing necessity for some central hospital or organization to help speech cripples and to try to make life more livable for them; an institution or hospital whose policy it was to take a very broad view of its duty to all those who came under its care, particularly the poor and neglected; a dignified humanitarian type of institution approved by physicians of the highest ethical standing and irrevocably opposed to quacks and fads.

There seldom is any speech defect that stands alone. Usually, it so intimately associated with other defects, physical, mental or moral, that in order thoroughly to remove the speech defect the associated defects must be treated also. Therefore, necessarily, the hospital or clinic had to be not only a medical institution, but an educational and social one as well, for it had to raise standards and inculcate good habits of all kinds in its patients.

We definitely realized that there was great need for a cooperative work, one in which there was an intimate relationship between medical, reeducational and social therapy. In other words, a center where the physician, the teacher or educator, and the social worker were represented in complete harmony.

## WORK OF THE NEW YORK CLINIC

About three years ago, the New York Clinic for Speech Defects, which recently changed its name to the National Hospital for Speech Disorders, was founded. During that time, more than 3,000 persons have applied for treatment. They have come from every state in the Union. Children and adults have come, suffering with every conceivable ailment of voice and speech.

They had defective speech conditions due to harelip, feeble lips, cleft palate, relaxed palate, jaw conditions (protrusions or recessions), teeth anomalies, tongue conditions and with various voice abnormalities arising from palate or laryngeal conditions, such as nasality, aphonia, hypophonia, phonesthenia and falsetto voices. Again, conditions of stuttering, stammering and lisping, deaf-mutism, audimutitas and idioglossia. We have seen numerous patients with diseases or conditions of nervous origin that give rise to various disturbances of speech, such as agitophasia (speech agitans), imbecility, idiocy, hereditary ataxia, progressive muscular atrophy, congenital hydrocephalus, spastic spinal paralysis, bulbar paralysis, syphilis, multiple sclerosis, Bell's palsy, postdiphtheritic paralysis, cases of tumors of speech areas (aphasia), and also medulla conditions, epilepsy, chorea, spasmodic tics, hysteria, and insanity.

The number of conditions just enumerated will at once show the extent of speech disorders in medicine. Our patients presented many interesting and complicated speech problems; for instance, we have already treated about 1,500 stutterers at our hospital.

## CONDITIONS OBSERVED

Stuttering speech is a neuropathic manifestation which has become a veritable obsession in a psychopathic or psychasthenic person, this state being the result of an unconscious motive, usually caused by the inability of the patient to adjust himself to some difficult situation. The nervous system of such a patient presents increased irritability with diminished capacity; a system that becomes easily affected from the least cause, and is constantly threatened with a break. If trying conditions occur, lowering the resistance to a given point, then when an emotional disturbance of some force occurs, such as a shock, a fright or an illness, the mental state is developed which precipitates the stuttering symptom. In other words, during the period of momentary paroxysm, some chance occurrence of hesitating speech or predisposition determines the development.

Since the condition is endogenic, there being in all cases a pronounced hereditary predisposition, the patient carries his burden all through life, though his symptoms can be kept in abeyance.

* Read before the annual meeting of the American Laryngological, Rhinological and Otological Society, June 4, 1921, Atlantic City, N. J.

Another prevalent condition that many of our patients suffer from, a disorder characterized by defective enunciation, is the inability to form correctly or to utter any or all of the sounds of speech. These patients are classified as stammerers and lispers, and must not be confused with stutterers, as stutterers show hesitating speech, while stammerers and lispers show mutilated speech. These patients either present a central (cerebral) involvement or a peripheral involvement, due to malformations of the organs of speech. The central involvement is either of a primary, so-called functional nature, or secondary, which is of an acquired nature. The peripheral involvement is either congenital (as harelip, cleft palate, malformations of the tongue, and jaw conditions), or it is acquired (as conditions of the lips, teeth, gums, palate, tongue, pharynx, larynx, and ears). Therefore, in all conditions of defective enunciation, there is an anatomic defect which is found either in the brain proper or in the organs of articulation.

It is a well known clinical fact that injuries to the brain, when the motor areas are involved, may result in spasms, paralysis or convulsions. Likewise when a sensory area alone is affected, there result the various disturbances common to sensory nerves, as numbness and paresthesia; or when particular centers are involved, the various forms of aphasia may result. Concomitant with these resultant conditions, or existing independently, are cases resulting from cranial injuries received in childhood; for instance, a fracture of the bones of the skull, or a concealed hemorrhage beneath them, causing destruction or disintegration of brain tissue (either centers or tract fibers between them), with degeneration of the nervous element.

Patients having a primary central involvement demonstrate an organic condition in the cerebral tissue in various stages of development. In some instances, this condition partakes of the nature of a manifest anatomic structural disintegration of the cells or fibers which go to make up the various speech centers, or their proper association tracts. In other instances, this functional disturbance is immediately apparent at the first efforts at speech and is sometimes of a more latent and potential character.

Besides the conditions just elaborated, there are numberless others. I shall touch on just a few of them. It is surprising how many people apply for treatment who suffer from agitophasia, or speech agitans, a condition of excessive rapidity of speech, in which sounds or syllables are unconsciously omitted, slurred, mutilated, or in any way imperfectly uttered, causing at the same time the speech accent to become distorted. These patients have great difficulty in making people understand what they say, so much so that they have a hard time in holding positions. A pathologic condition of the nervous system is usually present. Agitophasia may be associated with stuttering or agitographia (a form of writing in which letters, parts of letters or words are mutilated or omitted).

Another form of mutilated speech, particularly observed in young children, is idioglossia. These patients seem to speak a distinct language of their own. Parts of words or whole words may be slurred, disjointed or otherwise mutilated. In severe cases, they are quite unintelligible except perhaps to their little brothers and sisters, who often are the only ones who understand them. This condition of idioglossia is not associated with weakness of intellect, although there is often a family history of insanity. It is probably due to congenital deficient appreciation of musical tone. It is not associated with any malformation of the organs of speech.

We have had many children who suffer from auditory dumbness. The dumbness of children that hear, when young, is a condition of retarded speech development which is due to general physical weakness. These children have good speech understanding, and under careful supervision and treatment can acquire normal speech.

Besides these cases of hearing dumbness, we have, of course, had many cases of deaf-mutism. These patients being of a special class, their speech training is of a special nature, and it is not necessary for me to elaborate, as every one knows of the progressive work that is now carried on for the deaf.

Cleft palate patients always prove interesting problems. In these cases, strange as it may seem, the speech or voice defect does not coincide with the size of the palatal defect; for there are small defects which greatly interfere with the production of speech, while in some large defects of the palate, even with harelip, one finds tolerably good speech without even resorting to the use of mechanical interference. It is hardly necessary to state that closure of the cleft does not remedy the defective articulation; but I might add that the resonance of the voice becomes more normal, simply through the improved anatomic status. In nearly every case, speech training is not only advisable but absolutely necessary; for as well as the existence of a faulty physical condition, there also existed a faulty psychic condition, and while operative measures have been successful, the speech remains the same.

On account of our nonoperative cleft palate cases and the numerous conditions of dental anomalies that are present in all kinds of defective speech cases, we have found it necessary, in order to get the desired results, to conduct a fully equipped dental department, where special obturators, plates and MacKenty splints are made, and orthodontia work is carried out for malocclusion cases.

I wish to call attention to a special phase which these patients present, the condition amusia. All cleft palate patients suffer from amusia, that is, a disturbance in the musical faculty. They all demonstrate one definite form of amusia, that of tone deafness. Defects in the musical and speech faculties may coexist independently of one another. The independent occurrence of disturbances in their musical faculty points to the existence of a separate center presiding over the musical memory.

No progress can be made in the elimination of nasality, the great bane of cleft palate cases, until the patient's musical sense has been developed to such a degree that he or she realizes the difference between nasal and non-nasal intonation. As soon as this takes place, the patient strives for purer intonation, and gradually the nasality diminishes until, to all intents and purposes, it is completely lost. In other words, he has lost his tone deafness, and, of course, does not suffer from amusia any longer.

Besides nasality being due to congenital conditions such as cleft palate, it may also be due to injuries following the removal of tonsils and adenoids, to inflammations (as of the nose and pharynx), tonsillitis, diphtheria, syphilis and tuberculosis, and to tumors, nervous conditions, bulbar paralysis, etc.

A special form of voice disorder of a most distressing and embarrassing nature which has come frequently under our observation and which yields readily to treatment is a shrill high-pitched woman's voice, a falsetto voice, in a man. There is a prevailing erroneous impression in regard to this falsetto voice in the male. A falsetto voice is a voice often reckoned to the head register, its volume and area being almost as large as the chest register, reaching from $D^1$ to $f^2$. It is an octave above the chest register. It is of a thin, shrill quality, sounding forced or unnatural, and, as its name implies, is a false voice.

Of vocal anomalies that occur during or following mutation, the persistent falsetto voice is the one most frequently observed. While the condition occurs in both males and females, most of the cases that come under observation are in men. The falsetto voice is characteristic of the voice of the eunuch or eunuchoid. While their voices are practically similar in reference to pitch, ranging between tenor and soprano, they are absolutely dissimilar in reference to origin. Eunuchs are those individuals in whom for some reason the sexual glands have been removed (castration) in early life, a complicating result of which is nondevelopment of the larynx, so that the voice remains high. Eunuchoids are individuals who, without being castrated, entirely simulate in clinical manifestations the true eunuch type. This condition is due to a developmental disturbance beginning primarily in the sexual glands. One of the symptoms is a change in the pitch of the voice, which becomes high.

On account of this similarity, the term eunuchoid voice has been used synonymously with falsetto voice. The use of this term has given rise to much misunderstanding, which, of course, is rather unfortunate for those having a falsetto voice, for the falsetto voice of an adult male who is not a eunuch or an eunuchoid, does not depend on imperfect genital development, but, in practically all cases, is the result of a faulty habit which is contracted by the subject at the time of the change of voice and retained in after life.

We have had a great many patients suffering from organic and functional manifestations in the respiratory tract. Their voice abnormalities were the result of various conditions, as hyperplastic rhinitis, nasal obstruction, adenoids, tonsillitis, hyperthrophied tonsils, and follicular pharyngitis. Of the laryngeal disturbances, we frequently observed conditions of hysterical mutism, laryngeal phobias, aphonia, hypophonia, phonis thenia, laryngeal spasms and paralysis.

Laryngeal or pharyngeal trouble of professional voice users becomes a serious problem on account of the fact that their livelihood depends on their voices. Under those circumstances, neuropathic tendencies develop very readily; for example, let any slight laryngeal trouble which may happen to last for a few days disturb the patient, and fixation may be produced. Not alone do these voice patients develop neurotic tendencies; but from my observations, I have found that all of our patients, whether they suffer from a voice or speech disorder of a peripheral or central nature, have neurotic tendencies.

### NECESSITY FOR THE ESTABLISHMENT OF SIMILAR CLINICS ELSEWHERE

Speech is the great vehicle of human intercourse. Business and social life depends on it. To put it bluntly, if you can talk, you can put your ideas over; you can win success; you become independent. If you cannot talk, if your lips and tongue refuse their service, you cannot put your ideas over. You are dependent, and on account of continued conflict with everyday life, which to the normal speaking person is no conflict at all, you belong to a class apart, and you naturally develop neurotic tendencies.

To my mind, of the various kinds of defects that both children and adults are prone to, there is none so depressing or far reaching as a speech abnormality.

A composite therapy of a psychologic, medical, reeducational and social nature, is absolutely essential for the cure of those suffering from defective speech. The physician, the educator and the social worker are the greatest factors for good when they are fused together in such a harmonious union that their adjustment completely saturates the maladjustment of these long-suffering patients. In order to carry out such a cooperative work, a departure in clinics was necessary, and that prompted the founding of our institution, which we hope will prove, in the course of time, a model for similar institutions all over the country.

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## *Clinical Notes, Suggestions, and New Instruments*

### A CASE OF CENTRAL MYELITIS*

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This case is reported because it represents the unusual condition of a circumscribed central myelitis, most likely syphilitic in nature.

#### REPORT OF CASE

*History.*—H. S., aged 24, man, single, chauffeur, was admitted to the Mount Sinai Hospital, May 16, 1921. His chief complaint was loss of power in both lower extremities for the previous six days. The family history was negative. He had had gonorrhea in 1919, and at the same time, a small sore on the penis. This disappeared in one week and was not followed by sore throat, rash, loss of hair or any other signs or symptoms of syphilis. He was a heavy cigaret smoker, but he did not use alcohol. His general habits were good. There was no history of illness or injury preceding the onset of the present condition. In fact, he gave no history of injury, although some time after he entered the hospital, he recalled the fact that four years previously he had been in a car accident, had fallen from the car, and had landed on the back (of his head?), after which he was unconscious for an hour. There were absolutely no untoward after-effects. He was perfectly well the next day and remained so until the onset of the present sickness.

May 10, 1921, while driving his car, the patient experienced a tingling, drawing, numb feeling in the feet and legs, which gradually mounted to the groins. He also felt a peculiar stiffness in the limbs. He consulted a physician on the same day, after which he walked home and went to bed. The next morning, there was great weakness in both lower extremities, the dysesthesia continued and he had a girdle sensation. The following day, both lower extremities were totally paralyzed, and he suffered incontinence of urine and feces. It is worth emphasizing that the onset was fairly slow and gradual, the disease taking more than thirty-six hours to develop fully, and that there was no history of trauma, exposure or overwork. Attention should also be

* From the service of Dr. Bernard Sachs, Mount Sinai Hospital.

called to the fact that an examiner, several hours after the onset of the first symptoms, found no objective sensory disturbances, and that the patient could walk home from the physician's office.

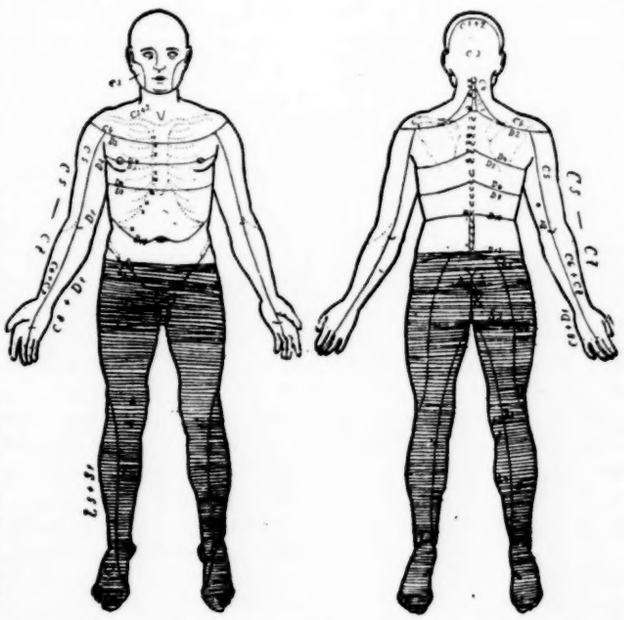
I saw the patient on the day following his admission to the hospital and recorded these findings:

*Examination.*—The patient was well-developed and well-nourished. Both lower extremities were completely paralyzed. He had incontinence of both urine and feces. Coordination was normal in both upper extremities; there was no ataxia, adiadokokinesis or dysmetria. There were no tremors, fibrillations or other abnormal involuntary movements. There was no rigidity of the neck, no Kernig sign, nor other abnormal associated movements. The jaw jerks, biceps, triceps, radial, patellar and Achilles reflexes were lively and equal. The abdominal, cremasteric and plantar reflexes were not elicited. There was no Babinski sign, nor its confirmatories. There was absolute loss of motor power in both lower extremities. The muscles felt soft and hypotonic; but there were no atrophies.

Sensory status: With the exception of small patches on the external surface of the right foot and left thigh, pain and temperature sensation was completely lost in both lower extremities. The level of loss began at the crest of the ilia, as shown at about *D* 12 in the accompanying chart. Touch was almost completely preserved, doubtful replies having been obtained in only a few small, ill-defined areas. Position and vibratory senses were intact.

Cranial nerves: The pupils were equal, slightly irregular, and reacted promptly to light and to convergence, but did not come down fully. There was a question of hippus. The fundi were normal. There were no ocular palsies or nystagmus. Other cranial nerves were normal.

*Course.*—May 18 (one day later), the loss of pain and temperature sensation was, if anything, more complete, and the knee and ankle jerks became diminished. Mild priapism was noticed. May 19, a bed sore developed on the right buttock. May 23, a belt of hyperesthesia was found, extending from *D* 12 up to *D* 3. At this time, there was slight impairment of the position and vibratory senses on the right side. A few days later, both knee jerks and the right ankle jerk were absent, but the left Achilles reflex was preserved. The abdominal reflexes were elicited, though feebly. The bed sore meanwhile became very extensive and penetrated down to the bone. A few days later, the vibratory and position senses returned to normal, but the loss of pain and temperature sensation, that is, complete sensory dissociation was absolute from about the level of *D* 12.



Total loss of pain and temperature sensation in a case of central myelitis, indicated by shaded areas.

About June 12, the patient began to perceive the pin prick in the right extremity. The knee jerks gradually returned and became lively, and a bilateral Babinski sign was elicited. Bladder and rectal incontinence persisted, and motor power was still completely lost. The bed sore, after an extensive area had sloughed off, began to heal. June 24, the area of hyperalgesia extended from *D* 4 to *D* 8, although the level of sensory dissociation was still below *D* 12.

Early in July, a very large bedsore developed on the left buttock. It became infected, despite unusual care in treatment, with resulting abscess formation. The patient began to have a septic rise in temperature (from 100 to 105 F.); he became emaciated, very weak and extremely anemic. This condition persisted for several weeks, when he was transferred to the Montefiore Hospital. The same condition persisted for a few weeks longer and he finally died. Throughout his illness, except for slight temporary involvement of position and vibratory sensation, the sensory dissociation was absolute.

The blood Wassermann reaction was ++++. The spinal fluid showed a 2 mm. ring of albumin, globulin +, no reduction, Wassermann reaction ++++, smear and culture negative. The blood showed a leukocytosis ranging from 11,000 to 28,000, with 93 per cent. polymorphonuclears. The urine was practically negative. During his stay in the hospital, he received numerous injections of arsphenamin and neoarsphenamin.

### COMMENT

The syringomyelic sensory dissociation and the early and complete loss of rectal and vesical control pointed to a lesion about the central canal of the cord. The absence of trauma, the comparatively slow onset of all the symptoms (at least thirty-six hours) indicated an inflammatory condition. When in addition the absence of fever at the beginning and the history of a probable chancre, together with slightly irregular pupils, are considered, there seemed to be sufficient justification for the diagnosis of a syphilitic, fairly circumscribed, central myelitis. The ++++ Wassermann reaction in the blood and spinal fluid confirmed the diagnosis tentatively expressed after the first examination.

A few other possibilities suggested themselves: First, a nonspecific inflammatory condition in a syphilitic patient, that is, a transverse myelitis involving mainly, or commencing about, the central canal. The absence of any discoverable etiologic factor, the absence of fever, the almost complete circumscription of the process about the central canal, as evidenced by the sensory dissociation, all were opposed to the diagnosis of a nonspecific inflammation and a transverse myelitis. The fact, too, that the symptoms receded very little, or not at all, also argued against the diagnosis of infectious myelitis or meningomyelitis.

Another possibility to be considered was a hematomyelia. Against this was the comparative slowness of the onset and the absence of any history of even slight trauma. The failure of the process to recede was also in opposition to such a possibility. A hemorrhage into a quiescent, nonsymptomatic, central gliosis was also suggested; but some of the reasons already advanced argue against such a conclusion. The failure of antisyphilitic treatment does not militate against the diagnosis of specific myelitis, considering the severity and site of the lesion and the fact that the specific cord lesions do not readily yield to treatment. Despite the absence of pathologic findings and the rarity of so limited an inflammatory lesion, the clinical signs and symptoms were, I believe, sufficiently conclusive to warrant the diagnosis of specific central myelitis.

It is somewhat difficult to explain the rather wide and fluctuating belt of hyperesthesia above the level of sensory dissociation which remained stationary throughout the illness.

1291 Madison Avenue.

**The Interned Insane in Prussia.**—The *Deutsche medizinische Wochenschrift* states that in 1917 there were 63,163 male and 59,921 female inmates of the asylums for the insane in Prussia. In 1918 the figures were, respectively, 50,788 and 51,970. The decline is ascribed to the numerous deaths during 1917. The alcoholic cases have shown a marked decline; from 5,000 in 1913 the figure dropped to 600 in 1918.

## *Special Article*

# REPORT OF COMMITTEE ON LOCAL ANESTHETICS IN OPHTHALMIC WORK*

*To the Members of the Section on Ophthalmology, American Medical Association:*

About three years ago, the Council on Pharmacy and Chemistry of the American Medical Association decided to ascertain the advantages and disadvantages of the various agents used for producing local anesthesia for general as well as specific purposes, and to decide which local anesthetics have distinct usefulness, which are objectionable, and which are superfluous duplications. In carrying out this purpose, a series of investigations was conducted by the Research Committee of the Council, which embraced a study of the toxicity, activity and efficiency of the local anesthetics as determined by experimentation on animals. These studies are contained in a number of papers published in the Therapeutic Research Reports of the American Medical Association and form a trustworthy and valuable addition to our knowledge of the comparative value of the local anesthetics.

A little more than a year ago, the Council requested that this Section aid in the clinical investigation of the subject, and a committee was appointed to study the subject of local anesthetics in ophthalmic practice.

The committee decided to draw deductions from the following:

1. A survey of the acquired experience of representative ophthalmologists.
2. Clinical investigation.
3. Experimental investigation on animals.
4. An analysis of the literature.

In carrying out the first purpose, your committee sent a questionnaire to all of the prominent members of this Section.

The questions asked were:

1. Which local anesthetics do you use at present, and in what strengths?
2. Do you use one local anesthetic for all classes of cases? If not, give particulars.
3. What special reasons have you for your preference as to the local anesthetic, strength and cases?
4. Have you abandoned or decreased the use of any anesthetics that you have tried? Give reasons.
5. Name, and state briefly, your experience as to the following points for the local anesthetics which you have tried. (Where more than one anesthetic has been used extensively, explain each in detail.)

(*a*) Agents and strength or concentration for superficial anesthesia.
(*b*) Agents and strength of concentration for deep anesthesia.
(*c*) Time of onset and duration in both cases.
(*d*) Degree of irritation, both cases.
(*e*) Effect on vascularity.
(*f*) Effect on pupils.
(*g*) Effect on corneal epithelium.
(*h*) Effect on accommodation.
(*i*) Effect on intra-ocular tension.
  (1) Normal.
  (2) Glaucoma.
(*j*) Occurrence of systemic intoxications.
(*k*) Stability of solution, including effect of sterilization by boiling.
(*l*) Effect of addition of epinephrin on intensity of anesthesia and duration of anesthesia.

Unfortunately, only about one half of those to whom the questionnaire was sent made any reply, but practically all of those who did reply represent ophthalmologists of recognized ability and wide experience, so that a digest of their opinions as herewith given forms a valuable contribution to the subject.

### ANESTHETIC PREFERRED

While a majority of those who answered the questionnaire admitted having tried many of the newer anesthetics, nearly all, or 98 per cent., now confine themselves to cocain, phenacain (holocain), and procain (novocain) in varying strengths, and each for specific purposes and with a specific reason for its use.

Practically all of the answers show that a distinction is made in the use to which the anesthetic is put. For instance, in cataract operations and all other operations in which the globe is opened, there is a very general preference for the local application of 4 per cent. cocain, though a few prefer 2 per cent. phenacain alone, still fewer the combination of 1 per cent. cocain with 2 per cent. phenacain, or 4 per cent. cocain in combination with 1 per cent. phenacain, and a very limited number (two) express a preference for 4 per cent. cocain, supplemented by the subconjunctival injection of 0.5 to 1 per cent. cocain.

In muscle operations about 25 per cent. of the answers show that the local application of from 4 to 5 per cent. solutions of cocain are relied on exclusively, though over 50 per cent. supplement this with either injections of procain (novocain) in from 1 to 2 per cent. solution, or cocain in 1 per cent. solution, and 5 per cent. of the answers indicate the use of pure powdered cocain over the operative field.

Those who use cocain for everything as well as those who use phenacain for everything are about equal in number, and few.

In glaucoma, or when using the tonometer, or in any case in which a dilated pupil is objectionable, phenacain is preferred by all but 5 per cent., and some of those who use cocain for everything employ a miotic to offset the effect of a dilated pupil when such is objectionable.

For foreign bodies in the cornea, and for surface anesthesia in connection with therapeusis, there is an overwhelming sentiment in favor of phenacain in from 1 to 2 per cent. solution.

In summarizing the answers to the first four questions in the questionnaire concerning the anesthetic preferred, strength used, and reasons for the preference, we find that the preponderance of evidence is in favor of a 4 per cent. solution of cocain as the local anesthetic for routine work. The reasons assigned for the preference are given as based on many years of experience, very satisfactory results from its use, and failure of other local anesthetics in one or more essentials to compare in reliability with cocain.

Practically all of the answers indicate that holocain in from 1 to 2 per cent. solution is used either frequently or occasionally in producing surface anesthesia for the removal of foreign bodies from the cornea, for local anesthesia in connection with therapeusis, for use prior to determining the tension with a tonometer, and for producing local anesthesia when a dilating effect on the pupil is to be avoided.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

Local anesthesia with 4 per cent. cocain solution is supplemented with subconjunctival injections of a 1 per cent. cocain solution, to which a few drops of epinephrin solution have been added, in operations on the iris, muscles and lids. In sac operations, infiltration anesthesia with 1 per cent. procain (novocain) and epinephrin, or 1 per cent. cocain and epinephrin, shows opinion about equally divided. Two answers indicate a preference for infiltration anesthesia with 2 per cent. apothesin.

Three of the answers indicate that local application of 4 per cent. cocain, together with subconjunctival and deep orbital injections of 1 per cent. cocain and epinephrin, also is used for enucleation. However, a greater percentage of the men use procain (novocain) in from 1 to 2 per cent. solution by infiltration methods for operations on the muscles, lids and sac, and enucleation, when general anesthesia is not to be employed.

### OBJECTIONS TO NEWER ANESTHETICS

In condensed form, the objection made to all of the newer local anesthetics, as indicated by the answers, is that none of them present all of the advantages possessed by cocain, and many of them present distinct disadvantages, not the least of which is difficulty in procuring them. Alypin, beta-eucain, acoin and apothesin were mentioned in numerous answers, but with the single exception of one endorsement of apothesin for infiltration anesthesia for enucleation, all were condemned as unsatisfactory for ophthalmic work. Alypin was pronounced too feeble as well as too toxic, and the same objection was raised concerning beta-eucain. Acoin was considered by two as painful to use, and about 25 per cent. of the answers indicated that apothesin is next to useless as an instillation, and not so satisfactory as either cocain or procain (novocain) in infiltration anesthesia. It also is considered more toxic than procain (novocain), and though less toxic than cocain, is thought to be far less efficient than the latter agent in infiltration anesthesia. Even phenacain, which next to cocain is most in favor, offers the objection that it produces irritation of the eyes, must be prepared and kept in porcelain receptacles, and not infrequently is difficult to obtain.

### STRENGTH OF SOLUTIONS PREFERRED

Concerning the strength of solutions, there is almost unanimity of opinion that a 4 per cent. solution of cocain and a 2 per cent. solution of phenacain will be proper concentrations for all but the surface anesthesia required for removal of foreign bodies from the cornea, applications of cautery or irritating remedies, or tonometry, when 1 per cent. solution of phenacain is considered sufficient. The combination of a 4 per cent. solution of cocain with a 1 per cent. solution of phenacain, or a 1 per cent. solution of cocain with 2 per cent. solution of penacain for deep local anesthesia, and especially to effect anesthesia of the iris prior to cataract extraction, seems to be popular with several well known ophthalmologists of wide experience. For superficial or surface anesthesia one instillation of either cocain or phenacain solution is deemed sufficient, whereas for operative work four instillations at three minute intervals are deemed required. The use of stronger solutions as well as an increase of the number of instillations of the standard solutions, is thought to induce collapse of the cornea as well as delay in closure of the corneal wound in cataract extraction.

For infiltration anesthesia, a 1 per cent. solution of cocain is just as popular as a 2 per cent. solution of procain (novocain), even though the lessened toxicity of the latter is admitted. The addition of epinephrin not only adds to the efficiency of the solution by reducing the amount of hemorrhage during the operation; but through constriction of the blood vessels, it lessens the absorption of the anesthetic agent and hence reduces the possibility of toxic effects.

### TIME OF ONSET AND DURATION OF ANESTHESIA

Five minutes after the instillation of either cocain or phenacain is considered in all of the replies as sufficient allowance for superficial or surface anesthesia, whereas fifteen minutes, or following immediately after the fourth instillation of either cocain or phenacain at three-minute intervals, is sufficient allowance for the deep anesthesia required for cataract extractions and other operations upon the eyeball. The anesthesia lasts from fifteen to twenty minutes, or long enough for the average ophthalmic operation.

In infiltration anesthesia, most operators allow from eight to ten minutes subsequent to the last injection to insure the maximum anesthesia, and they count upon holding the anesthesia for from thirty to thirty-five minutes.

### IRRITATION AND VASCULARITY PRODUCED

All of the observers agree that local instillation of cocain in the eye allays irritation and reduces vascularity, whereas phenacain produces the opposite effect. Most of the ophthalmologists offset the congesting effect of phenacain by adding epinephrin to the solution.

### EFFECT ON PUPILS, CORNEAL EPITHELIUM, ACCOMMODATION AND TENSION

Cocain dilates the pupils, desiccates and impairs the nutrition of the cornea, and produces a slight paresis of accommodation, whereas phenacain has no such effects.

Neither cocain nor phenacain affects the tension in the normal eye, but the tension of the glaucomatous eye may be increased by the effect of the dilation of the pupil produced by cocain.

### TOXIC EFFECTS

Owing to the fact that only small amounts of local anesthetics are used in ophthalmic practice, the occurrence of toxic effects is rare. However, about 10 per cent. of the answers to our questionnaire mentioned having seen mild toxic disturbances from both instillations and injections of cocain, and in three instances rather alarming symptoms were produced. It is but fair to report that the case presenting the most marked symptoms of collapse occurred following infiltration rather than instillation of a cocain solution, with consequent greater absorption and greater dose of the drug.

Some observers are inclined to believe that the mild toxic symptoms seen after instillation of solutions of cocain may be due to psychic influence as much as to the toxic effects of the cocain.

To offset the theory that toxic effects are not secured from instillations of 4 per cent. solution of cocain in the eye, your committee desires to call attention to an interesting feature in connection with this question, which is that in all of the answers to our questionnaire there is not a report of a case of toxic disturbance from phenacain. This also leads us to question the statement often made that phenacain is more toxic than cocain.

The toxic symptoms observed and described are at first a sense of exhilaration, followed by giddiness, oppressed breathing, pallor, nausea, clammy perspiring skin and general weakness. All of these symptoms usually disappear promptly after the patient lowers the head even with the knees, or is placed in a reclining position.

### STABILITY OF SOLUTIONS

Your committee has been interested in the conflicting reports concerning the stability of solutions of cocain, especially when sterilized by boiling. Fully 75 per cent. of those who answered the questionnaire reported that boiling does not impair the efficiency of any of the agents used for the production of local anesthesia, though three well-known members of this section, of ability and wide experience, assert that cocain solutions deteriorate through boiling. To enable the committee to arrive at more definite conclusions concerning this question, several clinicians were asked to compare the effects of boiled and unboiled solutions of cocain of the same strength in individual cases as well as in a series of clinical cases, and the returned reports indicate no difference in the anesthetic effect produced by the solutions that were sterilized by boiling and those not subjected to heat. The question arises, therefore, as to the possibility of erroneous impressions being formed as a direct result of insufficient clinical investigation.

Many of those who answered the questionnaire reported that they invariably sterilize their cocain solutions by boiling a few minutes prior to use in operative work, while others content themselves with dissolving the cocain crystals in water that already has been sterilized by boiling. All of the replies indicate that nothing but freshly prepared solutions of cocain are used in operative work. Solutions will remain active for a much longer time if .5 grains of boric acid is added to each ounce of the solution. One correspondent recommends the addition of 10 grains of chlorbutanol to each ounce of cocain solution, and asserts that it not only preserves the solution for several weeks but intensifies the anesthesia.

### EFFECT OF ADDITION OF EPINEPHRIN OR OTHER AGENTS ON THE INTENSITY AND DURATION OF ANESTHESIA

Fully 80 per cent. of those answering the questionnaire asserted that epinephrin added to phenacain and procain (novocain) solutions intensifies as well as slightly prolongs the anesthetic effect. However, concerning this subject, we desire to quote from the pharmacologic studies on local anesthesia conducted by Sollmann, and reported in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Jan. 26, 1918, p. 216, in which it is stated that the addition of an alkali to the local anesthetics other than phenacain, increases their anesthetic efficiency, as tested on the motor as well as the sensory fibers of nerve trunks, and increases the action of the anesthetics when applied to the surface as on the cornea. This increased activity by an alkali is due to the liberation of the anesthetic base which penetrates more readily than the salt. No increased activity occurs through the addition of alkalis when the anesthetic is used by infiltration.

Sollmann further states that the addition of an equal volume of 0.5 per cent. solution of sodium bicarbonate to a solution of cocain for surface anesthesia increases the activity of the cocain from one to two times; the activity of beta-eucain is increased two times; procain from two to four times; tropacocain and alypin, four times. This effects a marked saving in the amount of anesthetic drug used.

The efficiency of phenacain is destroyed by the addition of an alkali.

### COMBINATION OF ANESTHETICS

Inasmuch as some of the answers to our questionnaire indicated preference for various combinations of anesthetics, especially a combination of phenacain and cocain, we desire to call attention to the results of animal experimentation and study of the subject by Sollmann, THE JOURNAL A. M. A., Jan. 26, 1918, p. 218, from which we quote:

> The efficiency of mixtures of the local anesthetics corresponds to more or less complete summation without any potentiation. In other words, if two solutions of different anesthetics are diluted until they are "just effective," then a mixture of the two solutions will also be "just effective," no more and no less.

While nothing is gained by combination of anesthetics from the standpoint of efficiency, the undesirable side effects perhaps may be minimized.

### RELATIVE TOXICITY: ANIMAL EXPERIMENTATION

The occurrence and symptoms of acute cocain poisoning are so well known that it is unnecessary to do more than call attention to the fact. So far as we know, the literature contains no record of fatal results from cocain poisoning when the drug has been used purely for ophthalmic work, though numerous observers report slightly or even moderately severe toxic symptoms from instillations of even a 4 per cent. solution of cocain in the eye. It may be argued that psychic influences play a prominent rôle in these cases, though one must not forget the possibility of an extremely well-marked idiosyncrasy.

Concerning the relative toxicity and range of concentration of solutions for the several local anesthetics, attention may be called to the various investigations reported by Eggleston and Hatcher, in the *Journal of Pharmacology and Experimental Therapeutics*, August, 1919, p. 433, and in THE JOURNAL A. M. A., Oct. 25, 1919, p. 1256, a digest of which is herewith presented.

The search for substitutes for cocain has led to the introduction into materia medica of a large number of compounds possessing the property of causing local anesthesia, and for each of these the claim has been made that it is less toxic than cocain. These compounds belong to several general chemical groups, and not only do these compounds of somewhat diverse chemical nature possess the common property of producing local anesthesia, but also they resemble one another very closely in all their more important pharmacologic actions, such differences as are shown being chiefly quantitative. All are capable of producing severe or even fatal acute poisoning in man, with symptoms closely related to those produced by cocain.

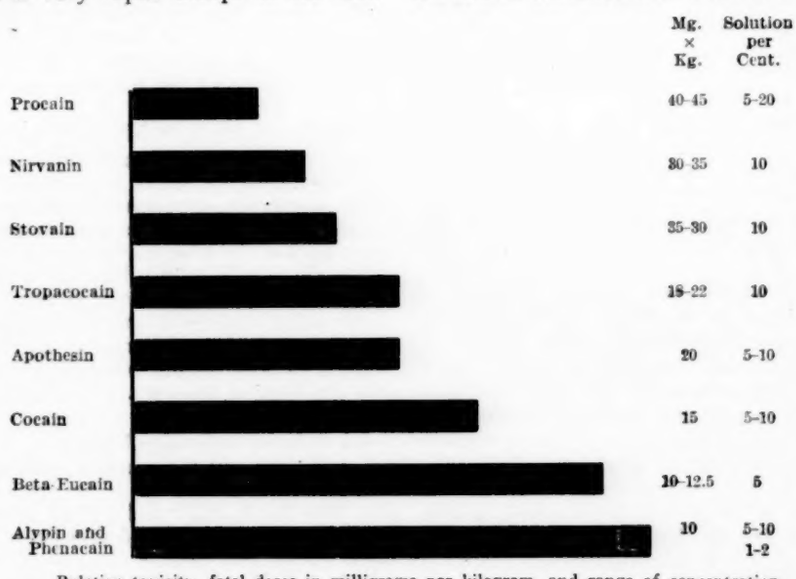
The rapidity of absorption of the drug into the blood stream seems to be the feature of greatest importance in determining the occurrence of acute intoxication, especially in the case of the several substitutes for cocain. An investigation was undertaken by the Research Committee of the Council on Pharmacy and Chemistry in an attempt to throw some light on the causes of acute intoxication in man produced by the several local anesthetics, to discover if possible some of the factors which influence the toxicity of these

drugs, and to find means of avoiding or combating the acute toxic actions. More than 300 animal experiments were performed, all of which were made on cats, which more closely resemble man in their response to most drugs than do the rodents. The local anesthetics employed were alypin, apothesin, beta-eucain, cocain, phenacain, nirvanin, procain (novocain), stovain and tropacocain.

The relative toxicity of these local anesthetics is shown in the accompanying chart.

From the chart it will be seen that cocain occupies an intermediate position with reference to its maximal toxicity, being surpassed by alypin, beta-eucain and phenacain, while the least toxic are nirvanin and procain. It will be noted that apothesin is but slightly less toxic than cocain, and is a little more than twice as toxic as procain (novocain).

It also was shown that many times the minimum fatal dose of procain (novocain) can be injected intravenously *if the injection is made slowly*. The recovery from a sublethal dose is very rapid except in the case of cocain, even when the dose approaches closely to the fatal. Cocain cannot be given by repeated intravenous injection of small doses without the development of evidences of accumulation as shown by the increasing severity of the symptoms following the later repetitions, and by the ultimate death of the animal after five times the minimum single dose given in a period of four hours and sixteen minutes. In the case of procain (novocain), the simultaneous administration of epinephrin greatly reduces the toxicity.




Relative toxicity, fatal doses in milligrams per kilogram, and range of concentration of solutions for the several local anesthetics.

The elimination of cocain and phenacain is a slow process, and in the case of cocain it may not be complete after periods of two or more days. Cocain and phenacain are relatively slowly destroyed, so that even when absorption is delayed by the vasoconstrictor effect of epinephrin they are still capable of accumulation in the essential organs sufficient to cause serious intoxication or death when from five to six times the fatal vein dose is injected subcutaneously.

On the other hand, the importance of the rapid destruction of the other members of the group is emphasized by the experiments with epinephrin, and it would seem to point to the decided value of always using epinephrin as a routine in combination with the cocain substitutes for subcutaneous injection in man, to delay absorption and diminish the chances of accidental poisoning.

Eggleston and Hatcher again state, THE JOURNAL A. M. A., Oct. 25, 1919, p. 1258, that in order to diminish the likelihood of intoxication from the subcutaneous injection of the local anesthetics excepting cocain and phenacain, epinephrin should be added to the solution as a routine, because by delaying their absorption it renders it probable that the destruction by the liver can keep the amount present in the circulation at any time at a point below that sufficient to cause intoxication. The use of epinephrin also has the further advantages of prolonging the anesthetic action of a given quantity of the drug and reducing the amount required to remain in contact with the tissue, and by maintaining the contact for a longer period of time than when the drug is injected alone.

## LITERATURE

While your committee has reviewed a great deal of literature pertaining to local anesthesia in ophthalmic work, most of which is the expression of individual opinions, it does not seem necessary to quote extensively or give the large number of references that would be required in order to do the subject justice. For the most part, the opinions expressed in recent literature are not at variance with the deductions drawn by your committee from an analysis of the experience of our members and the results of experimental investigation carried on by the Research Committe of the Council on Pharmacy and Chemistry of the American Medical Association. We especially are impressed with the favor shown infiltration anesthesia in ophthalmic work by so many of the prominent European ophthalmologists of wide clinical experience.

Perhaps the latest and most comprehensive work is that entitled, "L'Anesthesie locale en ophthalmologie," by C. Duverger, professor of clinical ophthalmology at Strasbourg. (Translated for the Committee by Dr. Pierre Gaudissart, Brussels.) A résumé of the principal points contained in that work is given herewith:

### I. ANATOMIC RESEARCHES

Conclusions drawn from experiments on skull and on cadaver.

(*a*) Needle 4.5 cm., reserved for total anesthesia of the superior maxillary nerve, or when there is edema of the region.

(*b*) Needle 3.5 cm., suffices in all other cases and can never injure the optic nerve.

(*c*) Needle 2.5 c., for skin, conjunctiva and lacrimal sac.

### II. SOLUTIONS

(*a*) For instillations in culdesac, cocain from 5 to 10 per cent solutions.

(*b*) For injections:

(1) Cocain solution 1 per cent. at the most, and better 0.5 per cent.

(2) Procain (novocain) solution is much better (Anesthetic power three times greater than cocain; ten times less toxic.)

In general surgery, 1 gm. may be used. For the eye, on account of the strong absorption power of orbital tissues, it is better never to inject more than 50 centigrams.

*Concentration.*—Four per cent. solution is the best.

Anesthesia of the whole content of the orbit requires only four injections of 2 c.c. temperature 32 C.

For broad plastics of the face, injections of from 1 per cent. to 0.5 per cent. dilutions are the best.

Epinephrin is useful in weak concentrations:

SOLUTION 1

| | |
|---|---|
| Procain | 0.20 gm. |
| Epinephrin (1/1,000) | 2 drops |
| Water | 5 c.c. |

SOLUTION 2

| | |
|---|---|
| Procain | 0.10 gm. |
| Epinephrin (1/100) | 4 drops |
| Water | 10 c.c. |

### GENERAL METHODS

Local anesthesia (instillations, infiltrations of tissues.)

Regional anesthesia; anesthesia of nervous branches.

Infiltration anesthesia is inferior to regional anesthesia because it alters the field by swelling and does not succeed with scar tissue and inflamed tissue.

Instillations must precede every operation. They reach superficial parts of the conjunctiva, cornea and iris. They never reach deep layers of the conjunctiva, subconjunctival tissues or ciliary body, and they are without action on inflamed tissues.

### ANESTHESIA OF THE GLOBE

1. *Cornea.*—When the eye is noninflamed, instillation. When the eye is inflamed, instillation only suffices for extraction of foreign body, cauterization or tonometry.

If there is traction on the conjunctiva, or pressure on the globe or emptiness of anterior chamber, conjunctival or deep anesthesia is required.

2. *Conjunctiva (Bulbar).*—The zone next to the limbus, breadth of 3 mm., innervated by the ciliary nerves, is anesthetized by the deep injection for anesthesia of the globe.

With all the operations which require a more extensive insensibility, subconjunctival infiltration, with a small and acute needle, and the 2 or 4 per cent. procain solution, must be used. This anesthesia also must be made in every complete anesthesia of the globe, for instance, in enucleation.

3. *Anterior Chamber.*—Cysts or Iridectomy: When the eye is white, instillations of from 5 to 10 per cent. cocain solution. When the eye is red and inflamed; deep anesthesia of the globe is required.

4. *Deep Anesthesia of the Globe.*—With 3.5 cm. needle, the author never has had the slightest accident. From 2 to 3 c.c. of 4 per cent. procain solution.

Injection: Lower and outer angle of rim of orbit. Needle is thrust in just against the bone, guided by the tip of the finger. Needle directed backward, upward and slightly inward, aiming to hug the floor of the orbit, then pushed in until its base reaches the orbital margin. During this time 0.5 c.c. is injected. The 1.5 c.c. remaining must be injected at several intervals, each time changing the position of the point of the needle. In that way, all the nervous branches of the muscular cone are reached by the diffusion of the liquid. In very inflamed eyes, it is better to inject 3 c.c. instead of 2 c.c.

As a second step, the subconjunctival infiltration must be done, but *only as a second step.*

The advantage of the injection through the skin is that in this way the painful globe is not touched.[1]

5. *Lids and Palpebral Conjunctiva.*—Anesthesia of the four nervous branches (nasal, frontal, lacrimal and suborbital) is too complicated when an operation is on the lids only.

The following method is more simple: From 2 to 4 per cent. solution is used. A needle, 2.5 cm., is introduced, 0.5 cm. to the outer side of the external canthus and 0.5 cm. below the external canthus. It is conducted midway between the skin and conjunctiva up to the inner canthus. When both lids are concerned, anesthesia may be obtained by the same puncture, by tilting the needle. This injection reaches all the nervous fibers which run from the base toward the margin of the lid. This injection suffices for all the operations on the lids.

For the Motais operation:

(*a*) Anesthesia of the upper lid.

(*b*) Needle thrust a second time exactly at the middle of the orbital margin, backward, parallel to the roof of the orbit, 2.5 cm. needle, 1 c.c. injected.

6. *Palpebral Plastics.*—Preliminary anesthesia of the lids is required.

(*A*) Autoplasty with Frontal Flap: Four and five-tenths cm. needle is thrust in at outer end of eyebrow up to the periosteum and pushed in, keeping in contact with the bone to the inner end of the eyebrow. During this time the liquid is injected slowly: 2 c.c. of a 4 per cent. solution.

The first step is common to all the frontal plastics.

The second varies.

(*a*) Flap with internal pedicle.

Needle thrust at inner angle of eyebrow of the other side, then pushed vertically in the median line up to the limit between upper third and inferior two thirds. All the branches coming from the opposite side are reached in that way.

(*b*) Flap with external pedicle.

Needle thrust near outer canthus and pushed backward, more or less upward, according to the situation of the pedicle.

(*B*) Autoplasty with Temporal Flap:

(*a*) Injection on the outer third of the orbital margin.

(*b*) Anesthesia of the frontolacrimal nerve in the sphenoidal cleft.

(*C*) Autoplasty with Maxillary Flap:

(*a*) Anesthesia of the suborbital nerve.

Patient clenches teeth, with the operator's finger on the point where masseter muscle begins to be inserted on bone. On the line connecting this point to the edge which marks the upper part of the wing of the nose, the needle is thrust a trifle inside the middle of this line, and pushed upward, backward and outward so that its direction cuts the middle of the mouth and that its angle with the tissues is 20 degrees (practically the thickness of the finger). One c.c. of 6 per cent. solution is the anesthetic for the lower lid, the inner part of the cheek and the wing of the nose.

(*b*) Lacrimal.

(*c*) Inferior and outer barrier.

Needle thrust in the cheek, a trifle above external angle of lips, pushed backward up to the vertical branch of the lower jaw, then thrust again and pushed upward to the level of the tragus of the ear. From 5 to 6 c.c. of 2 per cent. solution is used.

7. *Muscles-Strabismus.*—Deep injection as used for the complete anesthesia of the globe.

8. *Orbital Anesthesia.*—(*a*) Anesthesia of the nasal nerve.

The finger is placed on the pulley of the superior oblique muscle, a needle, 3.5 cm., is thrust against the inner side of the pulley, slips against the orbital wall backward, always with the point kept in contact with the supero-internal angle, with the base of the needle against the margin 0.5 c.c. of a 4 per cent. solution is injected. Thus anesthesia of all the branches of the nasal nerve is obtained with the roots of the ophthalmic ganglion.

(*a*) Anesthesia of frontal and lacrimal nerves.

The needle is thrust in at the outer angle of the margin of the orbit, above the palpebral ligament. It is pushed carefully horizontally, with care not to break the needle against the bone. Five-tenths c.c. of a 4 per cent. solution is injected when the base of the needle is against the margin.

(*c*) Anesthesia of superior maxillary nerve: in sphenomaxillary fissure.

A needle 4.5 cm. is thrust against the orbital margin, the outer and lower angle being 10 or 12 mm. inside this angle. It is pushed in the anteroposterior plane, backward and downward. When the base is against the margin, the injections are made.

### CONCLUSIONS

In analyzing the results of this investigation, so far as our present knowledge of ophthalmic work is concerned, your committee feels justified in arriving at the following conclusions:

1. For the Elliot operation, when the eye is quiet, repeated instillations and subconjunctival infiltration in the upper part are sufficient.

1. For surface anesthesia, cocain in 4 per cent. solution, freshly made, possesses distinct advantages over all other local anesthetics, particularly for operative work.

Concerning cocain anesthesia the following is offered:

(*a*) In all instances, the anesthesia is equal to and in most cases it is greater than that produced by any other local anesthetic.

(*b*) Its toxicity when used in the small dosage required for ocular anesthesia is almost negligible and does not count as a serious objection.

(*c*) The desiccation and disturbance of nutrition of the cornea produced by it are negligible or entirely avoided if care is observed in keeping the eyelids closed after the instillations of the cocain solution and up to the time that the operative work is to begin.

(*d*) The dilatation produced by the cocain is of short duration, does not often occasion inconvenience, and may be overcome promptly by the counter effect of a weak miotic.

(*e*) The penetrating effect of cocain solution is increased by the addition of 0.5 per cent. solution of sodium bicarbonate.

(*f*) The efficiency of cocain solution is not impaired by boiling.

(*g*) The efficiency of cocain solutions is not affected either as to intensity or prolongation of anesthesia by the addition of epinephrin.

(*h*) The use of stronger solutions than the one recommended are at the risk of seriously disturbing the nutrition of the cornea and interfering with the healing process.

2. Phenacain in 2 per cent. solution stands next to cocain in efficiency.

Concerning phenacain anesthesia the following is offered:

(*a*) It has the advantage of producing a quicker effect than cocain and a slight antiseptic action.

(*b*) It does not dilate the pupil, hence is valuable in producing surface anesthesia for tonometry, therapeusis and removal of foreign bodies from the cornea.

(*c*) It does not produce desiccation of the cornea, nor, so far as known, disturb nutrition.

(*d*) The solutions are not affected by boiling.

(*e*) Epinephrin does not add to its efficiency in any way.

(*f*) Alkalis should not be added to phenacain solutions as they cause precipitation.

(*g*) Phenacain offers the distinct disadvantage of producing more or less irritation, which is very objectionable to sensitive patients.

(*h*) Phenacain is incompatible with alkalis and their carbonate bases, and the use of glass vessels should be avoided in preparing the solution, porcelain being used instead.

3. Procain (novocain) in 2 per cent. solution is the anesthetic of choice for infiltration anesthesia.

(*a*) The addition of epinephrin does not increase efficiency, but does delay absorption and diminish the chances of accidental poisoning.

(*b*) Procain (novocain) solutions should be injected slowly to aid in the avoidance of toxic effects.

(*c*) The efficiency of procain (novocain) solutions is not increased by the addition of alkalis.

### RECOMMENDATIONS

Your committee believes that it is highly advisable to find, if possible, a synthetic anesthetic which will take the place of cocain—one that will be less toxic, less expensive, nonhabit-forming and equally efficient.

The Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association is now experimenting with several new local anesthetics not yet on the market, one of which is especially promising, though it must be tested clinically before expectations are raised. Your committee has been placed in possession of samples of this promising local anesthetic but has not had time to conduct sufficient tests to warrant an expression of opinion. The results of experiments in progress seem to indicate that cocain may be replaced successfully by one or more new synthetic anesthetics, although no definite announcement concerning the matter will be made until after adequate clinical tests justify some announcement. To that end we recommend that a committee be selected to cooperate with the Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association in carrying out such clinical investigations and experimental study, under suitable checks as to methods and technic as may seem indicated, in order to determine the advantages and disadvantages of the newer local anesthetics as they may be offered, as well as to continue the further study of any of the local anesthetics at present under study or that are considered in this report.

Your committee also recommends the further study of the advantages and disadvantages of infiltration anesthesia in ophthalmic work, with the possibility in view of recommending a more general employment of such form of anesthesia in ophthalmic operative work. Such an investigation should embrace a study of the agents adaptable to the purpose, the strength of the solutions and technic of application.

Any and all investigations should be independent of and uninfluenced by the recommendations or reports of manufacturers who usually are prejudiced because of the commercial interest in view.

ALBERT E. BULSON, JR., Fort Wayne, Chairman.
WILLIAM ZENTMAYER, Philadelphia.
EDGAR S. THOMSON, New York.
H. MAXWELL LANGDON, Philadelphia.
JOEL WHITAKER, Indianapolis.

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**Tribute to Cardarelli and Maragliano.**—The Twenty-Sixth Italian Congress for Internal Medicine was held recently at Naples, and was made a special tribute to the two best known Italian internists, Prof. A. Cardarelli and Prof. E. Maragliano, as the date corresponded with a professional anniversary. The issue of the *Riforma Medica* of Naples for October 22 is filled with tributes sent in by clinicians and internists from a number of different countries, including Falta of Vienna, Penzoldt of Erlangen, Henryjean of Belgium, Trunecek and Schmidt of Prague, Collet and Teissier of Lyons, Achard, Chauffard, Gilbert, Roger and Widal of Paris; Orth, B. Fischer and Schittenhelm of Berlin, Frankfurt and Kiel; a number in England, Laache of Norway, Lewellys Barker of Baltimore, Max Einhorn of New York, Holmgren of Stockholm, Sahli of Berne, and numbers of others. The portraits of Cardarelli and Maragliano accompany this tribute. This issue of the *Riforma* is sold separately for 5 liras (Piazza Settembre 22, Naples). The two following issues contain the scientific proceedings and are likewise to be sold separately, for 3 liras each. The *Riforma* was founded by Prof. G. Rummo in 1885, and at his death Cardarelli and Maragliano, both senators of the realm, became its directors, but Prof. A. Ferrannini is the acting editor.

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SATURDAY, NOVEMBER 26, 1921

## ATHREPSIA IN INFANTS

Infants may experience a variety of chronic disturbances of nutrition which are independent of known infections or recognized local causes. Sometimes the illness is characterized merely by a failure to gain in body weight, despite a liberal intake of food and an absence of conspicuous symptoms of indigestion. The condition here referred to has been designated as "Bilanzstörung" by some of the continental pediatricians. Other cases of disturbed nutrition may be associated with inability to digest sufficient food to meet the energy requirements for both maintenance and growth. A further category, involving much more serious conditions, includes infants who do not even maintain their weight, but pass into a state of malnutrition. This has been variously described by the terms "infantile atrophy," "Dekomposition" and "marasmus"; Marriott [1] of St. Louis has proposed that Parrot's older designation, athrepsia,[2] be retained for it.

Athrepsia should not be confused with conditions accompanying acute gastro-intestinal disturbances or toxicoses demonstrably of alimentary origin It is a truly chronic malady attended with upset of normal nutritive functions. The picture presented by the infant patients has been well described as "weakness and advanced emaciation without any evident cause for this condition and without general symptoms referable to the nervous system." Intestinal abnormalities are usually observed, but they appear to be a consequence rather than a forerunner of the athreptic state. The older idea of the existence of an atrophy of the alimentary tract in these cases has been abandoned as untenable in the light of postmortem evidence. Other hypotheses, such as the assumption of a negative mineral nutrient balance owing to abnormally large losses of bases like sodium, potassium and calcium through diarrheal stools, or the recourse to the always available theory of acidosis, also have not proved adequate to explain all the phenomena afforded by the sick child. There is little doubt that in advanced athrepsia there is a marked lack of absorption and consequently a poor nutritive condition due to lack of sufficient food; but the question whether there are functional disturbances beyond the alimentary barrier has not been satisfactorily answered.

Recently, Utheim [3] of the Department of Pediatrics at Washington University, St. Louis, has added some significant facts to our knowledge of athrepsia. He has demonstrated that in the case of infants suffering from this condition there is a diminished capacity of the organism to bring about such oxidations as the transformation of benzene to phenols. Added evidence of metabolic disturbances from decreased oxidative capacity was secured by a study of the urine. In athreptic infants there is an indication of excretion of an excessive amount of organic material containing little or no nitrogen. There is no increase in the excretion of creatinin, uric acid or amino-acid nitrogen in the urine, but during the severe stages of athrepsia there is an increased excretion of organic acids in the urine. As might be expected, the presence of large amounts of organic acids is accompanied by increased excretion of ammonia, which has hitherto been taken as the indicator of the acidosis. During the severer stages of athrepsia, the intestinal loss of energy derived from the food material in the stools may exceed 25 per cent. of the intake. With improvement in the nutritional condition of the infant, the utilization of food is much greater. The excretion of organic acids and ammonia likewise decreases. With respect to the basal metabolism of infants exhibiting severe malnutrition, Talbot [4] has lately observed at the Massachusetts General Hospital that the heat output per kilogram is higher than in normal average infants. He asserts that, with increasing nutritive decline, the divergence from the normal becomes greater and body heat is lost more easily because of the lack of the insulating layer of subcutaneous fat and of the greater radiation of heat due to the relative increase in body surface as compared to the weight. When the heat loss becomes greater than the heat production, the temperature becomes subnormal. This condition can be remedied only by the application of enough external heat to make up for the loss.

Marriott has stressed the fact that one outcome of the prolonged period of negative energy balance owing to poor food absorption and utilization is a diminution in the volume and in the volume flow of the blood which results in the inability of the infant to utilize suitable food given in reasonable amounts. He considers the slight degree of acidosis sometimes observed as a result but in no way a cause of the condition. The poorer circulation would of itself in time help to render metabolism incomplete. Without considering possible hereditary or constitutional factors, Utheim remarks

1. Marriott, W. M.: Some Phases of Pathology of Nutrition in Infancy, Am. J. Dis. Child. **20**: 461 (Dec.) 1920.
2. Parrot: L'athrepsie, Paris, 1877.
3. Utheim, Kirsten: Metabolism Studies in Infants Suffering from Chronic Nutritional Disturbances (Athrepsia), Am. J. Dis. Child. **22**: 329 (Oct.) 1921.
4. Talbot, F. B.: Severe Infantile Malnutrition: The Energy Metabolism, with the Report of a New Series of Cases, Am. J. Dis. Child. **22**: 358 (Oct.) 1921.

that even in adults there is a great difference in the reaction toward food and surroundings. Such differences are even more marked during the period of infancy; it would seem quite likely that certain infants are less capable of adapting themselves to artificial feeding than are others, and it is the infants of this group that fall into the condition of athrepsia when deprived of the natural nourishment. One of the first effects of failing nutrition is, perhaps, in the circulatory system, followed later by changes in the intermediary metabolism and functional disturbance in the intestinal tract. None of the factors taken alone, Utheim concludes, will explain the picture; but, together, they contribute in developing the athreptic condition.

## BACTERIALLY TAINTED MONEY

During the earlier years of the development of the modern science of bacteriology, the hunt for harmful microbes was a popular laboratory pastime. The readily secured evidence of the widespread distribution of germs—perhaps it should be designated the omnipresence of bacteria—at first disturbed the peace of mind of many persons who now saw the possibilities of disease transmission awaiting them at every turn. Presently, however, it became clearer that not all micro-organisms are baneful and that some are at least relatively innocuous; while the varied protective devices of the human organism against the microscopic invaders were being discovered in rapid succession, thus bringing the sense of relief that comes from the contemplation of our factors of safety.

The alleged danger of dirty money passed frequently from person to person in every day life has long furnished a subject for discussion by those who are accustomed to seek unanticipated calamities or who have in mind some project of a prophylactic nature. Not infrequently the latter are actuated by something more than purely philanthropic motives. There is no reason to believe, as might be expected if money in circulation were a menace to health, that those who handle it most frequently are peculiarly subject to disease. There are, of course, employments which represent vocational risks to the employees. Bank tellers and other money changers are not demonstrably exposed to unusual chances of infection, although the money which they handle is a medium received from all kinds of persons, often without regard to the possibility that it may be a carrier of infection.

There are scientific reasons why metallic coins may actually be destructive to bacteria. The latter are sensitive to small concentrations of the ions of some of the heavy metals. That such bactericidal action is actually exerted by coins seems likely from the studies of Ward and Tanner [1] at the University of Illinois, who found the indicators of pollution used in sanitary investigation entirely absent from coins in current use and examined by them. Thirty-seven of the strains of micro-organisms isolated from the coins were spore formers, and probably spores are necessary before the organism may perpetuate itself for any considerable length of time on coins. This, the Illinois bacteriologists assume, may explain why none of the commonly accepted indicators of pollution were found. They are not spore-forming organisms, and consequently are destroyed by the action of the metals. In other words, the coins act to some extent as bactericides. Similar experiments reported in Great Britain, where the ability of coins to spread disease was tested by the use of common pathogenic micro-organisms, disclosed that the life of the latter on the coins was very short. It was concluded that coins may be regarded as negligible factors in the transmission of disease.

Ward and Tanner have pointed out that postage stamps have somewhat the same relation to the public that money does, although their constitution is quite different from that of coins. Stamps are used but once and are not handled by so many individuals, although the adhesive applied to them might be a favorable abode for micro-organisms for relatively long periods of time. Nevertheless, the menace is not regarded as a threatening one; and in an investigation conducted some years ago with reference to the question here at issue, pathogenic bacteria were rarely found on stamps.[2]

## NEW SHEPPARD-TOWNER BILL PASSES

On November 19, the House of Representatives adopted the bill for the protection of maternity and infancy prepared by its Committee on Interstate and Foreign Commerce. This bill was substituted for the Sheppard-Towner bill recently passed by the Senate. On November 21 the Senate unanimously accepted the House bill as a substitute. The bill has now gone to the President for his signature, which is practically assured. The amendments made by the House are extensive, all of the text after the enacting clause being stricken out, and a new text substituted. The committee states, in its report, that "individuals, organizations and public prints which have contributed views on the subject have confined their discussions to one of the following general propositions," and then lists these propositions, which include practically all of the points against this bill which have appeared in THE JOURNAL from time to time. It is apparent that the committee was guided by these objections in its revision, and has endeavored to meet them.

The Senate bill appropriated $480,000 a year without time limit, $10,000 to be paid yearly to each state for administrative expenses. It also appropriated one million dollars a year without time limit to be prorated

1. Ward, Charlotte B., and Tanner, F. W.: Bacteria on Subsidiary Coins and Currency, Am. J. M. Sc. **162**: 585 (Oct.) 1921.

2. Keilty, R. A., and McMaster, P. D.: Med. Rec. **90**: 153 (July 22) 1916.

among the states in proportion to the population. The House bill appropriates $480,000 for the current year and $240,000 for the five years thereafter, to be equally divided among the states for administrative expenses, and makes a further appropriation of one million dollars a year for a limited period of five years, to be prorated among the states in proportion to the population. A second difference is that the Senate bill placed the administration of the bill in the hands of the Children's Bureau of the Department of Labor and provided for an advisory committee consisting of the Secretary of Agriculture, the Surgeon-General of the United States Public Health Service and the U. S. Commissioner of Education. The House bill creates a board of maternity and infant hygiene consisting of the chief of the Children's Bureau, the Surgeon-General of the United States Public Health Service and the United States Commissioner of Education. The Senate bill provided for the appointment of state and local advisory committees, at least one half of whose members shall be women. This provision is omitted in the House of Representatives bill. The most important difference, however, is in the provisions for the approval of plans and the distribution of money. The Senate bill provided that any state desiring to avail itself of the benefits of the act shall "submit to the Children's Bureau for its approval detailed plans for carrying out the provisions of this act. These plans shall provide solely for administration of the act in the state and provision for instruction in the hygiene of maternity and infancy through public health nurses, consultation centers and other suitable methods." The House of Representatives bill requires each state to submit "detailed plans for carrying out the provisions of this act . . . which plans shall be subject to the approval of the board." The last section of the House of Representatives bill provides an additional guarantee against bureaucratic control by providing that "this act shall be construed as intended to secure to the various states control of the administration of this act in their respective states." The Senate bill placed the complete control of all appropriations in the hands of the Children's Bureau, and required all states desiring to secure their part of the appropriation to submit plans for instruction in the hygiene of maternity and infancy through public health nurses, consultation centers and other suitable methods. The House bill places the control of the money appropriated in the hands of a board of three and provides only that the plan submitted by the state shall be subject to the approval of the board.

The House bill, as finally adopted by both houses, is much less objectionable than the one passed by the Senate. The objectionable feature of contingent appropriation still remains, and states will be tempted to appropriate money merely to get the equal amount offered by the national government. THE JOURNAL has insisted that this work, if undertaken at all by the federal government, should be a function of the United States Public Health Service. Placing the control in the hands of a board, consisting of two laymen and one physician, does not insure efficient medical administration of what is essentially a medical problem.

## THE FUNCTIONS OF THE GALLBLADDER AND THE BILE DUCTS

To the surgeon, who is often compelled to interfere with the integrity of the bile passages and the gallbladder, the prevailing uncertainty regarding the physiologic functions of these structures must be disconcerting. In extirpating the gallbladder he cannot fail to ask himself whether the organ is devoid of any importance for the body or to speculate on what it actually brings about in relation to the bile either in health or in disease. An appeal to current textbooks brings little satisfaction. They assure us essentially that the bladder has a motor function. Although the bile is formed more or less continuously, it enters the duodenum only at intervals associated with periods of digestion. Between these the sphincter at the end of the common bile duct is effective in stopping the onward progress of the bile, wherefore it is "stored" in the gallbladder. The gush of chyme into the duodenum seems to be the impetus, probably by reflex action, for a contraction of the gallbladder and an inhibition of the sphincter closing the opening into the intestine.[1]

Analyses of bile obtained from different parts of the biliary system have long demonstrated that the concentration of the hepatic secretion varies considerably as it is recovered from different localities in its onward path. Bladder bile is notably "thick." Some writers have given special emphasis to the view that considerable secretion of mucus and other substances takes place from the walls of the gallbladder, thereby contributing to the higher concentration of the contents. This idea has been given prominence in attempts to explain the genesis of gallstones in the bladder. The latter has been looked on as an added source of cholesterol in particular, Naunyn and his followers being largely responsible for the dominance of the hypothesis.[2] They have maintained that bladder bile is frequently relatively richer in the rather insoluble cholesterol, which constitutes the foremost component of biliary calculi found in the gallbladder.

The possibility that liver bile may be concentrated by mere absorption of water through the walls of the gallbladder during its more or less enforced stay there has never been lost sight of. To Rous and McMaster[3]

1. Howell, W. H.: Textbook of Physiology, Ed. 7, Philadelphia, W. B. Saunders Company, 1919, p. 826.
2. Wells, H. G.: Chemical Pathology, Ed. 4, Philadelphia, W. B. Saunders Company, 1920, p. 454. Hewlett, A. W.: Pathological Physiology of Internal Diseases, New York, D. Appleton & Co., 1917, p. 338.
3. Rous, Peyton, and McMaster, P. D.: The Concentrating Activity of the Gallbladder, J. Exper. Med. 34: 47 (July) 1921.

of the Rockefeller Institute for Medical Research is due the convincing demonstration of the surprising extent to which this mode of inspissation is a physiologic process. According to their latest observations, the gallbladder is something more than a mere muscular reservoir. It is capable of reducing the volume of the bile with surprising speed by the absorption of water. For example, in dogs a gallbladder, emptied at the beginning of one experiment and left to fill from the liver, concentrated the 49.8 c.c. of bile reaching it in twenty-two and one-half hours to 4.6 c.c., that is to say, reduced its bulk 10.8 times; while another bladder, left distended with a bile of known constitution and receiving in addition fresh increments from the liver, concentrated the secretion 8.9 times in twenty-two hours. Merely in its passage through the bladder, the bile may be concentrated more than four times. Rous and McMaster even look on the propulsive properties of this organ as subsidiary to the unique storage function. The gallbladder, they point out, acts like a distensible bag interpolated into a rigid system of tubes, to minimize extremes of pressure when bile comes rapidly or in large quantity from the liver, and its escape into the intestine is prevented by the sphincter. The bag in question is rendered capacious not so much through its size as by a singular ability to reduce the bulk of the fluid reaching it.

It is not surprising, therefore, that after cholecystectomy the bile ducts sometimes dilate so that the sphincter at the duodenum gives way.[4] As a practical deduction, it is obviously desirable to induce an opening of the sphincter at frequent intervals when the reservoir is removed. This can be accomplished by shortening the intervals between the feeding periods, so that the ducts will not become unduly distended in order to retain the secretory output of the liver in the interval from one gastric digestion time to another. The New York pathologists, in warning against the conception of the gallbladder as a mere diverticulum in the duct system, remark that the special character of its influence on the bile deserves emphasis as demonstrating the highly purposeful differentiation of the organ. The fact that few ills follow upon removal of the normal gallbladder means merely that the body has adapted itself to the loss, not that the loss is unimportant. In this connection, they add, the surgeon would do well to remember that uncertainty as to function and confidence in readjustment are at best questionable motives for adventures in ablation.

If our knowledge of the functions of the gallbladder has heretofore been so obscure, it must be confessed that those of the ducts have been almost unknown. Usually their walls have been assumed to act somewhat like those of the attached bladder. Rous and McMaster,[5] however, have shown that the activities of the bladder and ducts, respectively, are of different nature. Glands in the duct walls secrete a thin, colorless fluid which tends to dilute the bile passing through them. Thus, the inspissated product coming from the bladder may again be reduced greatly in concentration and restored to its earlier density. The fluid produced by the ducts forms the "white bile" familiar in certain types of biliary obsruction or when the liver itself has ceased to secrete.

The attested difference between the bladder and the ducts helps to explain why stones of the hepatic duct are less frequent and offer less clinical difficulty than the more familiar bladder calculi. The concentrating activity of the gallbladder renders it a menace during intermittent stasis and whenever the bile itself is of such a kind that stones readily form out of it. The more normal the organ, or, to speak precisely, the more of the concentrating faculty it retains, the greater is the danger. On the other hand, Rous and McMaster conclude, surgeons should realize that the removal of a normal gallbladder entails functional disturbances that are none the less significant because the body adjusts itself to them. Furthermore, cholecystectomy is often followed by a marked and permanent dilatation of all the ducts so that they come to hold much bile. The accumulated secretion is separated from the intestine only by a weakened sphincter, and ascending infection of the ducts has been noted to occur.

4. Judd, E. S.: Ann. Surg. 67: 473 (April) 1918.
5. Rous, Peyton, and McMaster, P. D.: Physiological Causes for the Varied Character of Stasis Bile, J. Exper. Med. 34: 75 (July) 1918.

## *Current Comment*

### PRESCRIBING BEER AND WINE—SENATE ADOPTS CONFERENCE REPORT

The conference report on the Willis-Robinson bill, amending the Volstead act by forbidding the use of wine and beer as medicines, was adopted by the House; the action of the Senate completes the legislative approval of this measure, and sends it to the President for his signature. It is generally understood that the President will approve it. This will automatically revoke the regulations recently issued by Secretary Mellon, permitting the prescribing of wine and beer as medicines. The newly adopted measure specifically forbids their use for this purpose. According to newspaper reports, the brewery interests intend to take this measure before the United States Supreme Court on a test case as quickly as possible. There are two points on which the constitutionality of the law can probably be attacked. The first is Section 6, the so-called Stanley amendment, regulating search and seizure. It is claimed that the law, as passed, constitutes an unwarranted infringement on the rights of the citizen and is in violation of the constitution. The other question is the right of the federal government to determine by law what preparations may or may not be used as medicines. The Volstead act, as its title indicates, was for the purpose of prohibiting intoxicating beverages. The use of alcohol for medicinal purposes was regulated but not forbidden. The same principle is involved here as in the Harrison law. Either the federal gov-

ernment must recognize the right of any physician legally qualified under the medical practice act of his state to use such remedies for the treatment of disease as his scientific knowledge and ability may determine; or the federal government must undertake, through Congress and its executive departments, to decide what drugs may be used in the treatment of disease. In the latter case, the federal government must assume the responsibility for deciding scientific questions. As this question is fundamental to the practice of medicine, it is to be hoped that it may be brought before the United States Supreme Court for decision at the earliest possible opportunity.

## THE PAY CLINIC

A number of pay clinics have recently been established, for the stated purpose of providing examinations by groups of physicians for people of limited resources who are unable to pay large fees, but who are also unwilling to accept charity. Such clinics range from those established under the joint auspices of the state boards of health and the U. S. Public Health Service for the treatment of venereal disease at a very low charge, up to the pay clinics established by certain universities for the examination and, in many cases, the treatment of even wealthy patients who may—or may not—be referred to the clinic by practicing physicians. The latest of these pay clinics is the one recently established by Cornell University College of Medicine, a statement in regard to which appears this week in our correspondence column. The establishing of such clinics has been stimulated by the fact, expressed in recent years, that only the wealthy people and charity patients were able to secure examinations by groups of specialists. The wealthy patient could afford to pay the several fees charged by the individual specialists to whom they were successively referred, while the charity patient went to the free dispensary and secured examinations by the various clinicians which his particular conditions may have required. The real function of the diagnostic clinic is to handle those patients in whom the examination and diagnosis require the use of special apparatus not possessed by the average physician, or when the joint examination by several specialists is essential. To avoid excess charges and to secure reliable treatment, therefore, many patients have preferred to attend the free dispensary. Most of these patients, if they could secure satisfactory medical attention, would gladly pay reasonable charges. Such clinics can be successful and render an excellent and continuous service to the public when at the same time they establish a close cooperative relationship with the local practicing physicians. They should receive no patients able to pay a fee unless the patients are referred by the family physician—if they have one—or are received with his knowledge or approval; and, to prevent the appearance of competition, the fee charged by the clinic should be no less than that charged for a like service by the family physician. Where clinics so conducted have back of them a well-known university or hospital, or when they are conducted by physicians of established reputation, they will meet a positive need in their respective communities. It must be remembered that the family physician, after all, is the most important factor; it is through his intimate contact and personal acquaintance with the patient that sound advice and proper treatment can be best secured for the great majority of sick people. Diagnostic or pay clinics will render their greatest service both to the public and to the medical profession if they cooperate to the greatest possible extent with the family physician.

## NOSTRUMS AND QUACKERY: VOLUME II

In 1911 the American Medical Association published "Nostrums and Quackery"; this volume of 500 pages represented an accumulation of much of the material published up to that time on the nostrum evil, quackery and allied matters affecting the public health. The book was extensively reviewed, both in medical and lay periodicals, and the first edition was quickly exhausted. A second edition of Volume I, some 200 pages larger, appeared in about a year, and this also has had a wide and general circulation. Since January, 1913, when the second edition was issued, THE JOURNAL has continued to publish articles of interest to the public on the nostrum evil and on quackery, and these articles have been republished from time to time in pamphlet form. The number of inquiries coming to THE JOURNAL for information relative to various quacks, "patent medicines" and allied subjects has now led to the issuing of a second volume in which all of the material published since the second edition of Volume I has been brought together and freely illustrated. The book, uniform in style with Volume I, contains more than 800 pages. It has a most comprehensive index including references both to the present volume and to Volume I. It may be conservatively stated that these two volumes constitute a veritable encyclopedia on the nostrum evil, quackery and unscientific medical empiricism. There are chapters on "cures" for the alcohol, tobacco and drug habit, for consumption, for deafness, for epilepsy, for kidney disease and diabetes, for obesity and for rheumatism. There are chapters on medical mail-order concerns, medical institutes, mineral waters and quackery of the drugless type. There is a chapter of miscellany containing much interesting information on subjects of a quasimedical nature. The book is useful; it is interesting; to the physician who would be well informed it is indispensable. It should be on the reception room table of every physician in the country. If it is carried away surreptitiously by the patients, so much the better.[1]

## DEATH ERRONEOUSLY ATTRIBUTED TO CHLORINATED WATER

A man, aged 65, of Chester County, Pa., died after a few hours' sickness, and a coroner's jury, finding that he had drunk copiously of the chlorinated public water supply, rendered a verdict that death was caused by "general systemic debility caused by chemicalized water, which produced a severe gastro-enteritis followed by cardiac failure." Since millions of persons drink of public water supplies that are regularly disinfected with chlorin, the commissioner of health of Pennsylvania caused the body to be disinterred for postmortem examination. Dr. Baldwin Lucke, of the

1. See description on advertising page 35.

University of Pennsylvania, performed a necropsy, the results of which indicated that the cause of death was dilatation of the heart, and that marked arteriosclerosis was the underlying cause of the heart condition. The drinking of chlorinated water evidently had nothing to do with the death. The further evidence showed that many other houses were being supplied with water from the same main as the decedent's house, and that there was no evidence of any discomfort or illness accredited to the water supply in any of these houses. The coroner's jury was reempaneled and made a supplemental report to the effect "that chlorin was neither directly nor indirectly the cause of death; that death was due to acute dilatation of the heart, sequential to the loss of bodily fluids, incident to a severe attack of toxic gastro-enteritis, with complicating, extensive cardiovascular and renal degeneration." The Pennsylvania officials conclude, as is generally well known, that "there is no reason to fear that the chemical disinfection of public water supplies is other than an important safeguard and protection to the public health." Thus, time and money have been well spent to allay any public suspicion relative to an important public health measure.

# Association News

## MEETING OF THE BOARD OF TRUSTEES

### Autumn Session, Held Nov. 10-12, 1921

The Autumn meeting of the Board of Trustees of the American Medical Association was held at the Association headquarters, November 10-12, 1921. The opening meeting was called to order by the Chairman, Dr. Sarles. All members of the Board were present; also the President, Dr. Hubert Work, and the President-Elect, Dr. George E. de Schweinitz.

#### NEW BUILDING

Among other matters taken up by the Board were the following: In its report to the House of Delegates last June, the Board of Trustees stated that the Board had decided to commence the new building in the Spring of 1921; that in accordance with the instructions the architects had made plans and specifications, which the Board had approved; that the bids were so much higher than the architects' estimate that it was concluded to put off building for another year. In the present discussion attention was called to the fact that the building fund which had been accumulated was established by the House of Delegates for this specific purpose, and that owing to the war and the cost of material and labor building had been postponed, but that now the cost of building had been materially reduced, it was the opinion of the Board that the new building should be erected in 1922. Attention was called to the fact that there is need for more space in the printing department, as well as in the editorial and other departments, if the Association is to function efficiently. In the discussion emphasis was made that the time had arrived to put into operation a long-existing policy, the operation of which circumstances have prevented. This policy includes the organization of a larger personnel at headquarters and in the field, to bring the benefits of organized medicine to its members all over the country, viz.: professional advancement, through postgraduate study, improvement of facilities for practice, including hospitals, libraries and the like. The sentiment of the members of the Board and of the officers of the Association was expressed as favorable to the policy of financial cooperation of the Association with the constituent state organizations in the establishment of full-time paid secretaries as a field personnel.

The question as to whether to carry the whole building up to eight stories was fully discussed, and this point was left to the Executive Committee and the General Manager, who were instructed to make a careful investigation at the committee's December meeting, and to report recommendations to the Board.

#### HARRISON LAW RULING

Dr. M. L. Harris, Chairman of the Judicial Council, called the attention of the Board to a ruling of the Commissioner of Internal Revenue of the Harrison Act in the regulation of the prescribing of narcotic drugs by physicians. Dr. Harris stated that the present interpretation is that physicians must register and pay a fee for every location in which they conduct their business, and that in Chicago some physicians pay from one to three or more registration fees. He believed that this interpretation of the law is wrong and unconstitutional. He stated that the attorneys for the Chicago Medical Society have conferred with the Commissioner of Internal Revenue and that the decision of the Commissioner was that stated by Dr. Harris. After thorough discussion, it was the unanimous opinion of the Board that this unjust administration of the Harrison Act should be corrected. The matter was referred to the Council on Health and Public Instruction, with the understanding that the Council, through its Chairman, Dr. Victor C. Vaughan, now a resident of Washington, should first communicate with the Commissioner of Internal Revenue in an attempt to secure a satisfactory ruling; and that in the event of failure to secure this object, other measures should be undertaken by the Council.

#### REPORT OF DR. DE SCHWEINITZ

At the request of the Board, the President-Elect, Dr. de Schweinitz, who was the official representative of the Association at the opening ceremonies of the Union Medical College of Peking, made a report. (See THE JOURNAL, November 19, pages 1679-81.)

#### REFERENDUM

The Editor and General Manager brought before the Board the proposition of taking a referendum of the profession for the purpose of obtaining data as to the opinions of the physicians of the country on the alcohol question as it relates to the practice of medicine. After full discussion the proposition was unanimously endorsed.

#### COMMISSION ON ANESTHESIA

A communication was received from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry, in which it was recommended that a commission be appointed on anesthesia. The Board recognized the splendid work that had been done through subcommittees, especially through that on local anesthetics in the nose and throat, by a committee representing the Section on Laryngology, Otology and Rhinology, but believed that the work could be carried on successfully under the Committee on Therapeutic Research, without creating a commission. The Board, however, wishes to assure the Committee on Therapeutic Research that appropriation will be made for the continuance of its good work.

#### PAY CLINICS

The question of pay clinics, diagnostic clinics and group practice was given extended discussion and a special committee was appointed to report during the present meeting. This Committee met and considered the subject from every point of view. The general consensus of opinion was that pay clinics have come into the field to remain permanently; that it is the duty of the Association to study the subject and to offer fundamental principles and policies which should be followed in the conduct of such clinics, group practice, and diagnostic clinics. The principles deemed basic are: (1) that patients should be received by the clinic only when sent by the family physician or received with his knowledge and approval; (2) so far as feasible the patient should be returned to the family physician with written information and suggestions; (3) that the fee charged by such clinic should not be less than that usually charged in general practice, so that, as far as possible, competition of the clinic with the general practitioner should not occur, and the chief consideration should be the public and the medical profession. It was finally decided that the Executive Committee and the General Manager should secure a committee of three, if possible, to make a survey of certain existing

diagnostic clinics and private groups, for the purpose of obtaining full information of the methods of administration and policies under which such institutions are conducted, and report to the Board at the February meeting.

COOPERATION WITH STATE ASSOCIATIONS

The subject of the cooperation of the American Medical Association with the constituent state associations in matters of medical defense was then considered, and a motion was made to create a committee on medical defense to report at the February meeting. The Committee appointed is composed of Drs. McDavitt (Chairman) Mitchell and Sarles.

GORGAS MEMORIAL

Mr. H. de Joannis appeared before the Board in behalf of the Gorgas Memorial Institute of Tropical and Preventive Medicine of Panama, and requested the cooperation of the American Medical Association. After discussion, the Board authorized the secretary to inform Admiral Braisted, President of the Board of Directors of the Institute that the American Medical Association will cooperate.

LIFE EXTENSION INSTITUTE

The Secretary of the Board presented the request of the Life Extension Institute for recognition of its work by the American Medical Association. He recalled the fact that this request was made at the Boston meeting of the Board, when the President of the Institute, Mr. Harold A. Ley, appeared before the Board, and stated that, following the Boston meeting, as directed by the Board, he had obtained from Mr. Ley additional information on the work of the Institute, in the form of circulars, books and other data. The secretary read two additional communications which had recently been received from Mr. Ley. A general discussion followed and the following resolution was offered, duly seconded and carried: The Board of Trustees has considered the matter of the Life Extension Institute and as the methods employed do not conform with the ideas of the Board regarding the practice of medicine, it cannot consider the question further.

RESOLUTIONS ON DEATH OF DR. DWIGHT MURRAY

A special committee appointed for the purpose presented resolutions on the death of Speaker Murray, which were approved by rising vote, and a copy of which was ordered forwarded to Mrs. Murray.

FRANK BILLINGS,
Secretary, Board of Trustees.

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## CONFERENCE OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

### First Meeting—Friday Morning, November 11

The conference met in the Assembly Hall of the American Medical Association at 10 o'clock and was called to order by Dr. Hubert Work, Pueblo, Colo., President of the American Medical Association, who said in part:

It has been my pleasure to sit with the Board of Trustees, and I can assure you that it is working in the interest of the American medical profession. You are entering on a new era in the practice of medicine, and the Board of Trustees is going to blaze the way as it has never done heretofore. I believe that in the future the state secretaries will take a more active part and be in closer affiliation with the parent organization and with the Board of Trustees than ever before. As to those who are not willing to enlist in these newer activities I hope that their state societies will put in their places men who will be in sympathy with the march of events.

### Past, Present and Future Policies of the American Medical Association

DR. FRANK BILLINGS, Chicago: In speaking of the future it is necessary to survey rapidly the past and present. The American Medical Association was organized in 1847. Its primary aim was to improve medical education in the United States, and for the next twenty-five years it worked to this end. With the reorganization of the Association in 1901 and immediately following, the question of greater activity on the part of the Association in this work was dominant, so that in 1903, at the meeting in New Orleans and in subsequent years there resulted the formation of the first Committee on Medical Education, which grew into the present Council. It is unnecessary to repeat what the Council on Medical Education has done, but its continued policy has been to work for the standardization of medical education throughout the country; and, although not delegated to do so, the Council has worked also for the improvement of hospital standards. A year ago the word "hospital" was added to the title of the Council. Now the Council also looks after the improvement of hospitals, especially that class which has to do with medical education.

In 1883 the Association began the publication of a journal. Before that time the transactions of the Association were published in book form once a year. For the first 15 years THE JOURNAL did not have a large circulation. In 1898, the Association secured the services of Dr. George H. Simmons, who has been editor since that time. One year later Dr. Simmons was made general secretary of the Association. His work on organization as editor and general manager has been of a character that needs no comment. THE JOURNAL of the Association is now the best professional journal published in the world; it has the largest circulation of any medical journal, more than 80,000 copies weekly. The Association is also printing five special medical journals.

It is not the function of the Board of Trustees to adopt policies for the Association. That is the function of the House of Delegates; but we may bring our thoughts to you and formulate our proposed policies as they will be presented in our report to the House of Delegates.

With reference to "state medicine," I understand it to be that function of the state which has to do with the prevention of disease and of injuries. What factors are there involved in the prevention of disease? First of all, the dissemination or promulgation of regulations for the prevention of disease which are practical and enforcible. It is the prevention of disease through the prevention of the pollution of drinking water, the prevention of contamination by sewage and contamination through the privy and other things. It is the prevention of pollution and contamination of foods. It is the standardization and availability of drugs, serums and antiserums for the use of the profession. It is the regulation and standardization of measures of child welfare, and especially of the examination of schoolchildren, the prevention of the spread of communicable disease among schoolchildren and the correction of physical defects.

As members of the Association, we will oppose any measure which will separate the practitioner of medicine from his patient, or any measure which will in any way restrict the private practitioner in discharging his function or interfering with domiciliary visits.

As modifications of state medicine, perhaps one of the most outstanding things is compulsory health insurance, which is dead and need not be discussed. It will never become operative in any state in this Union.

For the first time in the history of the United States, the urban population is in excess of that of the suburban population. Fifty-two per cent. of our people live in the populated cities today, whereas formerly a larger percentage of the people were rural. With this excess of population of the general public in the cities there is an excess of population of physicians in the cities, so that there is a dearth of physicians in rural districts. The cry is that medical education has been advanced so rapidly that there are not enough graduates in medicine to supply the need. When we come to analyze the situation we find that there is a larger number of physicians in our cities than are needed, and a much smaller number than there should be in the country.

Ways and means must be devised to increase the number of physicians in the rural districts. It is in the minds of the Board of Trustees to bring to the attention of the House of Delegates the question of greater cooperation on the part of the American Medical Association with the state organizations. We must have in the office of the Association an increased personnel and a larger building to carry on the work. We must have men in the office who will be in charge of the field work, and there is no class of men better qualified for field service working in cooperation with the American Medical Association than the state secretaries.

Your Board of Trustees has the interests of the medical profession at heart, and we are all interested in the protection and promotion of the general practitioner of medicine.

DISCUSSION

PRESIDENT WORK: Speaking of health centers, I think the term community center should be substituted for health center. Community centers contemplate so much more than health centers.

At this juncture, the President-Elect of the American Medical Association, Dr. George E. de Schweinitz, Philadelphia, took the chair and called for discussion on the remarks of Dr. Billings.

DR. ROCK SLEYSTER, Wauwatosa, Wis., in opening the discussion quoted from an address on "The Future of the Medical Practitioner," delivered before the Cleveland Academy of Medicine, Jan. 16, 1920, with his approval, as follows:

Up to the present time the primary, if not the sole object of organization in the medical profession has been the diffusion of medical knowledge to the end that the population should best receive the benefits of the discoveries and advancements made in the science of healing. The benefit to the individual member of the profession has been in his opportunity through such organization to increase his own knowledge and perfect his own methods for the sole purpose of rendering better service to his clientele. Only the great medical profession, as widely as it touches public life, has been blind to the desirability of such influential participation in community life, and has failed to appreciate that the trend of the times in all other professions, businesses and trades is toward a policy of publicity, assertiveness and aggressiveness in pushing the profession, if not the individual members of it, into the life of the community.

The two outstanding points in Dr. Billings' remarks which appealed to me are, first, the necessity of the recognition of making the isolated country practitioner or small town practitioner as a member of the American Medical Association feel that something is being done for him, and, second, improving conditions for him, for the success of the general practitioner is the foundation of medicine in every respect.

DR. D. E. SULLIVAN, Concord, N. H.: In the immediate future there are grave questions that the American Medical Association must meet, for on it rests the great responsibility of compelling the public mind to think straight in matters pertaining to public health and the practice of medicine. In recent months, legislation has been enacted in all parts of the country in direct defiance of the expressed opinion of medical societies, yielding to the voice of people expressed through politicians, and the standing of the medical profession is nothing. All sorts of cults and "isms" have been recognized, and the voice of scientific medicine stifled. If I read the times aright—and I am not a pessimist nor an alarmist—there are ominous and evil days for the medical profession unless we take hold of this job in manlike fashion. I believe we have got to adopt definite and concrete resolutions and then act on them. We should have a strong central committee selected without regard to favoritism, politics or location, that will represent the best thought and minds of the profession in its everyday affairs. That will necessarily imply a good deal of expense. Can we not afford it? We cannot afford to do otherwise. Considering the magnitude of our Association, we have failed to march to the music of the times. We have allowed lay organizations to insinuate themselves into medical practices and really to undermine the very stability of public health organization. If my section of the country is any criterion of the rest of the United States, the general practitioner is much disgusted with the way these things have been handled by our profession in the past.

DR. EDGAR A. HINES, Seneca, S. C.: I sent a questionnaire to every member of our county medical society (and we are 100 per cent. strong), asking their ideas as to what the American Medical Association has done for them and for American medicine: 1. Do you depend on the general practice of medicine for the support of yourself and family? Probably not more than 25 per cent. of the doctors in my county depend on the practice of medicine for a living. Why? I have taken a reply from one of the best general practitioners, educated in the best schools of the country, both literary and medical, twenty-five years ago. His answer is, no, not entirely. 2. Do you think the general practice of medicine as a vocation offers a decent living and sufficient remuneration to educate one's children and lay aside a little money for old age? Yes, if the individual practices thrift as a man does in any vocation if he succeeds financially. 3. Would you advise your son to take up the study of medicine? If not, why? After the hardships of the profession have been explained to him and he still wishes to pursue the study of medicine—yes. 4. Do you know of a prospective student of medicine in this county? 5. What are the evil tendencies in medicine today detracting from the profession from a humanitarian point of view? Commercialism has become rampant and widespread. Advertising, which is called legitimate by some, is practiced in all sorts of devious and uncertain ways. 6. What may the American Medical Association do to help you and uplift the profession as a whole and restore it to the high plane it once enjoyed? Come out strongly against the foregoing. Unfortunately, some men have occupied and are occupying official positions who have or are practicing one or the other of the foregoing. The profession should readjust itself decisively and most emphatically against the exorbitant fees being exacted by some real specialists as well as some would-be specialists.

DR. L. B. MCBRAYER, Sanatorium, N. C.: As to the scarcity of rural practitioners, I was talking with a young man the other day who graduated from the University of Michigan. His uncle is a general practitioner in that state, he is getting old, and wants this young man to assume charge of his practice. This young man said there were two things that made it impossible for him to do it, one of which was that he was familiar with the work his uncle had done, and he could not use the things and methods in rural practice that he had spent time in learning in the study of medicine. The other thing touches our education and the rural districts. We cannot expect men who have received a good preliminary education and who graduate from our best medical colleges to go out into the country communities, throw away their knowledge of scientific medicine, and practice medicine loosely as general practitioners isolated in country communities are compelled to do.

DR. OLIN WEST, Nashville, Tenn.: With respect to ideals, I believe that the medical profession has gotten away from some of the ideals of our fathers to which they should have clung tenaciously, persistently and eternally. I do not believe that "state medicine" will ever be operative in the United States. It ought not to be put over from the standpoint of the people whom we are to consider, nor from the standpoint of the medical profession. Unless the members of the medical profession as a whole get back to the place where they can recognize their responsibilities and realize the things they get for being physicians and change their attitude on a good many things, they are going to be driven into a modified form of "state medicine." What has the medical profession done as a whole to circumvent the conditions that lead up to the present situation? It has not assumed and maintained leadership that was thrust on it by right. We are going to have public health institutes in our country very soon unless the medical profession assumes leadership in public health work. With reference to social insurance, we are not going to have it, but we have got something which is worse than that, and that is workmen's compensation. The medical profession should in a concerted way circumvent any action which allows a physician a sum not to exceed $100 in a workmen's compensation case, which is the limit for the phyiscian and hospital. Again, we are tolerating all sorts of violations of the code of ethics, and nobody says anything about it. We need some one to do plain speaking to ourselves and look the facts squarely in the face and assume the responsibility we ought to do. We have reached a point at which we have forgotten ideals and obligations, and we have just allowed ourselves to drift along with the tide, and many of the developments of the present day are due to these forgotten ideals and obligations. I believe that if some one could impress these ideals deeply

on the minds and hearts of the medical profession, much of our difficulties and troubles we are worrying ourselves to death about would soon adjust themselves, and we would be on the high tide of prosperity from every standpoint.

DR. HORACE J. BROWN, Goldfield, Nev.: In my state we are practically all country. Our largest city (Reno) contains only about 15,000 inhabitants. The rest of our community ranges in population anywhere from 100 up to 2,500. Our practitioners are all more or less general practitioners, and they demand and receive much larger fees than the average general practitioner in communities of the same size in the East. Nevertheless, every man in our state who has any pride in his profession and any desire for advancement feels a lack of facilities to carry on his work as he would like to do. There are very few young men today, unless they have parents who are financially able to see them through a long course of drudgery, who are really able to get opportunities either in a city or country for the practice of medicine. If after graduation a young man stays in a city like Chicago, if he has no hospital connections, with nobody to pull for him, where is he going to get? If he is in a country district he becomes acquainted with everybody, makes a half way living, manages to raise a family, and, if adapted to that kind of work, he dies a poor man unless he is fortunate in his investments. Such men should be cared for under the fellowship that we have. As a suggestion for the handling of the city and country proposition, I think it would be advisable for the American Medical Association to get in such close touch with every member so as to know exactly what his abilities and preferences are.

MR. G. H. WINFREY, Richmond, Va.: The general public is more interested in getting results than it is in the welfare of the medical profession. It is a great deal more interested in eradicating tuberculosis, typhoid fever and kindred diseases than it is in your getting anything out of it or in your having any particular part in it. If the members of the medical profession have neglected to seize the opportunities for assuming leadership in their work, it is entirely their own fault. The general public knows nothing of what you are doing. The general public should be informed as to the splendid work your various councils are doing, and this can be done only through an extensive publicity campaign.

DR. C. D. SELBY, Toledo, Ohio: I have a letter from Dr. Teachnor, president of the Ohio State Medical Association, in which he pledges the full strength of the Ohio State Medical Association in all constructive movements undertaken by the American Medical Association. It is evident from what Dr. Billings has said that the Board of Trustees feels the necessity of assisting the practitioner of medicine, and we concur absolutely in that necessity. It has been proved conclusively by those who have spoken that the general practitioner in medicine is the man who needs our help. I am firm in the belief that we cannot overeducate the physician; we cannot provide too many facilities in the line of diagnosis for him; we cannot make him too good a physician. That is fundamental. We think all activities of the American Medical Association designed with that object in view should be augmented as rapidly as possible. Other features which we feel have been neglected, and which make for the success of the physician, are his economic relations and public relations. There should be a Council on Medical Economics to teach physicians the economic side of medical practice, office routine, etc. I would advocate increasing the activities of the American Medical Association along three lines: 1. Education to make a man a better physician. 2. Medical economics to make him a better business man. 3. A Council on Public Relations in order that the medical man may be presented rightly to the general public.

*(To be continued)*

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**Laboratory Determines Result of Treatment.**—The employment of laboratory methods makes it possible when dealing with a complex procedure, such, for example, as sanatorium treatment, or the technic of aseptic surgery, or vaccine therapy, to investigate the effect of the separate items of treatment instead of noting only the effect of the procedure taken as an aggregate.—A. Wright, *Lancet* **2**:645, 1921.

# *Medical News*

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## ALABAMA

**Appropriation for Pasteur Institute.**—The governor has approved the act appropriating $25,000 for treatment at the Pasteur Institute of indigent persons who have been bitten by rabid animals. This appropriation will be taken from the fund obtained from the dog licenses.

## CALIFORNIA

**Sentenced to Jail for Prescribing Narcotics.**—It is reported that early in November Dr. C. B. Gay of Los Angeles was sentenced to ninety days in jail for prescribing narcotics in bad faith. This conviction follows steps taken by federal authorities to break up a narcotic ring operating in all parts of southern California. Twenty-five counts were lodged against Dr. Gay at the time of his arrest.

**Southern California Medical Society.**—The sixty-fifth regular semiannual meeting of the society was held, November 4 and 5, at Los Angeles, under the presidency of Dr. Charles L. Bennett, Los Angeles. Dr. William Duffield, Los Angeles, the former secretary-treasurer of the society, was elected president. Dr. Robert Pollock, San Diego, was made first vice president; Dr. Herbert A. Johnston, Anaheim, second vice president, and Dr. Egerton L. Crispin, Los Angeles, secretary-treasurer. The next meeting of the society will be held at San Diego in April, 1922.

## CONNECTICUT

**Higher Requirements at Yale.**—The report of the president of Yale University for 1920-1921 states that hereafter three years of collegiate work will be required of all applicants entering this school of medicine.

## DELAWARE

**Organization to Fight Cancer.**—The Delaware Branch for the Society for the Control of Cancer met recently and effected a permanent organization with Dr. Alfred K. Smith, Wilmington, as president.

## DISTRICT OF COLUMBIA

**Bill to Examine Delinquents Defeated.**—A bill for the establishment of physical examination of all delinquents brought before the juvenile court of the District of Columbia met with defeat after a spirited debate. Opposition centered about the appointment of a physician at $5,000 a year and a psychiatrist at $1,800 a year and a psychologist at $2,000 a year. Another provision of the bill provided for the selection of a woman physician at a salary of $1,000 a year. A similar measure has been pending in the Senate for some time, but has never been taken up for consideration.

## IDAHO

**State Medical Meeting.**—At the recent meeting of the Idaho State Medical Association, held at Twin Falls, the Idaho League for the Conservation of Public Health was organized with Dr. Lucien R. McCalla, Boise, president, and Dr. Ernest E. Laubaugh, Boise, secretary.

## ILLINOIS

**School of Instruction for Health Officers.**—Definite arrangements have been completed by the state department of public health for conducting a school of instruction for health officers in Springfield, December 12-15, inclusive. Lectures and discussions will be given by Dr. Isaac D. Rawlings, director of public health; Dr. William A. Evans, Dr. John Dill Robertson, Dr. Lee A. Stone, and the chiefs of the various divisions of the state department of public health. Copies of the program will be available at an early date, and may be had from the state department of public health on request.

**Birth Registration.**—Dr. Isaac D. Rawlings, state director of public health, has sent a circular letter to every physician

in the state, calling attention to the fact that Illinois is the only northern state east of the Mississippi River that has not been admitted to the Birth Registration Area of the U. S. Census Bureau, owing to the failure so far to secure the registration of 90 per cent. of births. The cooperation of the medical profession is asked in securing the registration of all births attended by physicians. The medical profession is also asked to stimulate public sentiment in favor of complete registration. Resolutions adopted by the advisory committee on public health state that so far only 82 per cent. of births have been registered and that, in the opinion of the board, every physician or midwife who neglects or refuses to comply with the laws should be reported to the state's attorney for prosecution.

### Chicago

**Chicago Medical Society.**—At a meeting of the society, held, November 23, Dr. Abraham Zingher, assistant director of the research laboratory, department of health, New York City, spoke on diphtheria prevention.

**Chicago Institute of Medicine.**—A meeting of the Institute of Medicine of Chicago was held, November 22, at the City Club, Chicago. Dr. Robert McCarrison, M.B., D.S.C., Lieut.-Col., Indian Medical Service, gave an illustrated lecture on "Faulty Food in Relation to the Gastro-Intestinal Disorders."

## INDIANA

**Hospital News.**—The campaign to raise funds to purchase needed equipment at the Jay County Hospital resulted in a total of $1,542.50 having been subscribed.

**Damages for Interference with Practice.**—Dr. George F. Smith, Bicknell, it is reported, was awarded $65,000 in Greene circuit court, Bloomfield, in his action against four other Bicknell physicians. Dr. Smith's court action followed the refusal of the state board of medical examiners to revoke his license at the request of the four physicians whom he made defendants. Dr. Smith charged that the other physicians were attempting to destroy his practice and drive him from town.

## IOWA

**Personal.**—The citizens of New London gave a golden jubilee banquet, November 10, in honor of Dr. Frank C. Mehler on the fiftieth anniversary of his residence in New London, as a physician.

**New Officers for Northwestern Medical Society.**—At a recent meeting of the society, held at Sheldon, the following officers were elected for the ensuing year: Drs. Frank S. Hough, Sibley, president; Frederick W. Cram, Sheldon, vice president, and Jay M. Crowley, Rock Rapids, secretary.

## KANSAS

**Hospital News.**—At the annual meeting of the Kansas Hospital Association, held at Newton, October 20, Dr. Albert R. Hatcher, Wellington, was elected president of the association. The other officers are: Dr. Richard C. Young, Arkansas City, vice president, and Dr. John T. Axtell, Newton, secretary-treasurer. McPherson was chosen for the 1922 meeting.

## KENTUCKY

**Personal.**—The state board of health, November 14, unanimously elected Dr. Lewis S. McMurtry president of the board to succeed Dr. John G. South, who has resigned to accept the position of United States minister to the Republic of Panama.

## MARYLAND

**Plans New Health Center.**—Dr. C. Hampson Jones, commissioner of health, Baltimore City, has completed arrangements for the establishment of a health center in the Walbrook district. A lease on a building has been made for a term of three years, for the use of this center.

**Courses of Extension Teaching.**—The University of Maryland has established courses of extension teaching for physicians, including (*a*) a weekly clinic in the medical school amphitheater, beginning Thursday, December 1; and (*b*) clinics by prominent physicians in various parts of the state at given intervals.

**Laënnec Society Meeting.**—A meeting of the Laënnec Society of the Johns Hopkins Hospital was held, November 21, in the medical amphitheater of the hospital. Dr. Esmond R. Long, Sprague Memorial Institute, Chicago, spoke on "The Biochemistry of Tuberculosis." Dr. Louis V. Hamman is president of the society, and Dr. Allen K. Krause, secretary.

**New Appointments to the Johns Hopkins Hospital.**—Reorganization of the medical department of the Johns Hopkins Medical School has been completed and the new appointments, made to replace those who resigned to go to other institutions, have been announced by Dr. John Whitridge Williams, dean of the school.——Dr. William S. McCann, instructor of medicine at Cornell University Medical School, New York, and assistant visiting physician to Bellevue Hospital, has been chosen associate in medicine to succeed Dr. Walter W. Palmer, who resigned to go to Columbia University. Dr. John B. Youmans of the Massachusetts General Hospital, Boston, and Dr. Robert R. Hannon, a holder of the Barrett fellowship last year, have been appointed to the staff, to fill the vacancies caused by the resignations of Dr. Dana W. Atchley and Dr. William S. Ladd, who went to Columbia with Dr. Palmer.——In the biologic division, Dr. Alan M. Chesney has been appointed associate professor of medicine; Dr. Arthur L. Bloomfield, associate in clinical medicine, and Dr. Alfred B. Hodges, assistant in medicine, succeeding Drs. Alphonse R. Dochez, Walter P. Bliss, and Hugh J. Morgan, who also went with Dr. Palmer.——In the division of clinical pathology, Dr. Walter A. Baetjer has been appointed associate in clinical medicine and Dr. John G. Huck, instructor in medicine, in place of Drs. Frank A. Evans and F. D. Conroy. Both Dr. Baetjer and Dr. Huck have been connected with the medical school since their graduation.——In the general division of the department, Dr. Charles Sidney Burwell succeeds Dr. R. V. Mason as instructor in medicine. Dr. Burwell is a graduate of Harvard and was house physician in the Massachusetts General Hospital.——The status of Dr. Llewellys F. Barker as professor of clinical medicine remains unchanged. With the exceptions of Dr. Baetjer and Dr. Bloomfield, all are in the full-time list and will give all their time to the hospital and university.

## MASSACHUSETTS

**Hospital News.**—The Trumbull Hospital, Brookline, is nearly completed. The capacity will be fifty beds, and the work will be chiefly surgical and obstetric.

**Scholarships for Tufts College Medical School.**—Two scholarships of $3,000 each are created by the will of Dr. Elizabeth A. Riley, the income to be applied to the education of needy and worthy women students in Tufts College Medical School. One scholarship is to be known as the Charles P. Thayer Scholarship in recognition of Dr. Thayer's services to the school, and the other to be known as the Dr. Elizabeth A. Riley Scholarship.

## MICHIGAN

**Free Clinic at Sanatorium.**—It has been announced that a free clinic will be conducted at the Battle Creek Sanatorium. The laboratories and medical experts connected with the sanatorium will be at the service of the patients. Physicians outside the sanatorium may use the institution's equipment.

**Roosevelt Community House.**—On the occasion of the visit of Marshal Foch and General Pershing at Battle Creek, the Roosevelt Community House was transferred to the American Legion and dedicated as the Roosevelt American Legion Hospital. The formal opening of the hospital will take place Thanksgiving day. It is planned to use the hospital entirely for the treatment of tuberculosis patients.

## MISSISSIPPI

**Hospital News.**—Contracts for building five units of the Mississippi Tuberculosis Sanatorium at Magee have been awarded by the state authorities at Jackson. The total amount of the expenditure is $544,130.

**Organization of New Medical Society.**—Following the disbanding of the county societies in Jones, Forrest, Covington, Greene and Perry, the South Mississippi Medical Society has been organized. Dr. Jefferson D. Donald, Hattiesburg, is the president; Dr. Joseph S. Gatlin, Laurel, vice president, and Dr. Theophilus E. Ross, Jr., Hattiesburg, secretary-treasurer. It is planned to have two meeting places, alternating between Hattiesburg and Laurel, the sessions to be held every three months. The next meeting will be held, December 15, at the South Mississippi Charity Hospital, Laurel. It is expected that the organization eventually will include also the counties of Smith, Jasper, Wayne, Clarke, George, Stone, Marion, Pearl River and Lawrence.

## MISSOURI

**University Hospital Assured.**—It is reported that the University of Missouri has received an appropriation of $250,000 for the erection of a university hospital at Columbia. This is in accordance with the plan of the university to reestablish a four-year course in its medical school.

**Jackson County Medical Society.**—At the meeting of the society, November 15, Dr. William Palmer Lucas, San Francisco, spoke on "Blood Studies in Infancy and Childbirth." Dr. Byron Bennett Davis, Omaha, addressed the society, November 22, on "Neoplasms of the Breast."

**Teaching Sanitation to Blind Children.**—The Missouri School for the Blind is having health crusade charts put into braille with a view to teaching hygiene and sanitation to the children in the grades. This instruction in hygiene and sanitation will later be included in the high school courses for the blind.

## NEW HAMPSHIRE

**Hospital News.**—The New Hampshire Memorial Hospital, Concord, which admits only women and children, has just finished a drive for $100,000 to build an addition. The drive was conducted throughout the state, and resulted in $74,599 being received from 4,513 subscribers.——The Elliott Hospital, Keene, in a drive for $150,000 conducted in Keene and surrounding towns, has realized $224,000 in subscriptions.

## NEW JERSEY

**Personal.**—Dr. Richard Bew has been elected president of the Atlantic County Medical Society; Dr. David B. Allman, vice president, and Dr. Edward F. Uzzell, secretary-treasurer.

**Symposium on Venereal Disease.**—Under the auspices of the American Public Health Association and for the purpose of encouraging the establishment of venereal disease clinics in as many cities as possible, a symposium on venereal diseases was conducted at the City Hospital, Jersey City, November 10. The principal address was delivered by Dr. John A. Fordyce, Columbia University College of Physicians and Surgeons.

**Physicians Resent Beer Ruling.**—The Atlantic County Medical Society at its annual meeting at the Hotel Chalfonte, November 11, passed the following resolutions condemning the recent medicinal beer ruling:

WHEREAS, Malted stimulants of high alcoholic content are without official pharmacopeial recognition or therapeutic registry, and

WHEREAS, The recent interpretation of the federal act with reference to the use of beer as a therapeutic remedy, will lead to great and wide abuse and moral reflection on the medical profession. Be it

*Resolved*, First, that the Atlantic County Medical Society goes on record as being unequivocally opposed to being placed in a false position to the world at large by seemingly justifying a practice and therapeutic necessity, the real purpose of which is to promote the dispensing of beer as a beverage under a legalized cloak of a medicinal agent;

That the Atlantic County Medical Society strongly resents any attempt of liquor or allied interests at shifting on its members any part of the responsibility properly attaching to the distribution and sale of intoxicants;

That the members of the Atlantic County Medical Society refuse to become stigmatized as puppets of a brewery or allied liquor interests.

## NEW YORK

**Franklin County Medical Society.**—At a meeting of the society, held at Malone, November 9, Dr. William G. Turner, Montreal, Que., delivered an address on "Diagnosis of Hip Joint Diseases," illustrated by lantern slides.

### New York City

**Report on Hospital Situation in New York.**—The New York Academy of Medicine will hold a meeting, December 1, at which a summary of the findings of the public health committee's study of the hospital situation in New York will be presented by Prof. E. H. Lewinski-Corwin, executive secretary of the committee. Dr. Wallace will discuss "The Recording of Hospital Case Histories"; Dr. Sigismund S. Goldwater, "The Private Room and the Ward," and Dr. Thompson, "The Function and Need of a Central Hospital Bureau."

**"Prevent Disease" Drive.**—The Medical Society of the County of Kings has adopted resolutions looking to the initiation of a campaign of education in preventive medicine. The medical societies of the other boroughs of the city have been invited to join the Brooklyn physicians in their movement to inform the public on "Social Disease and Degeneration and Waste of the Man-Power of the State." A committee of five has been appointed to confer with similiar committees from other societies on the preparation of a plan for lectures to be given as a part of this campaign. The public is also to be warned against the "nature and probable effect of threatening or pending vicious public health legislation." The resolution was introduced by Dr. John J. A. O'Reilly.

**American Public Health Association Meeting.**—At its annual session held in New York City, November 14-18, the Food and Drugs, Public Health Administration and Laboratory Sections adopted a report of the committee recommending that the group of drug addicts "variously spoken of as criminals, degenerates and feebleminded" be kept under official control, and declaring that the control of this group is a police problem. The group of addicts who suffer from physical conditions necessitating an indefinite continuance of their use of drugs constitutes a medical problem, in the opinion of the committee. For the prevention of new cases of drug addiction, the committee recommended that international measures leading to the reduction of uncontrolled supply of drugs be taken, and that physicians be educated as to the danger of inducing addiction through medical practice and that the best methods of avoiding such dangers be emphasized. The association endorsed the movement to establish the Gorgas Memorial Institute of Tropical and Preventive Medicine in Panama City. A committee was appointed to represent the association in furthering the memorial. An outstanding feature of the conference was a banquet held at the Hotel Astor in honor of Dr. Stephen Smith, who founded the association fifty years ago. Dr. Smith, who is within thirteen months of the century mark, stood and addressed the company for half an hour. President Harding sent a message congratulating Dr. Smith upon his health and his splendid work, and adding good wishes for the testimonial banquet. The association elected the following officers for the ensuing year: president, Dr. Allen J. McLaughlin, Assistant Surgeon General, U. S. P. H. S.; vice presidents, Dr. Haven Emerson, New York City; Dr. Alfonso Pruneda, head of the national department of health of Mexico, and Dr. Royal S. Copeland, health commissioner of New York City; executive secretary, A. W. Hedrich; treasurer, Dr. Roger I. Lee, Cambridge, Mass.

## PENNSYLVANIA

**Personal.**—Dr. Frederick W. Black, Lewistown, chief surgeon for the Lewistown Hospital, was shot when called to his office, by an unidentified man.——Dr. Adolph Koenig, Pittsburgh, and Lee Masterson, Johnstown, have been appointed by Governor Sproul to the advisory board of the state department of health.——Dr. Charles B. Penrose, Philadelphia, has been reappointed by Governor Sproul to the advisory board of the state department of health.——Dr. William C. Sandy, Philadelphia, psychiatrist of the New York State Commission on Mental Defectives, has been appointed chief of the division of mental health of the Pennsylvania State Department of Public Welfare, the appointment to become effective in December. This completes the list of chiefs under Dr. John M. Baldy, state commissioner of welfare.

### Philadelphia

**Campaign of the Welfare Federation.**—A campaign for $4,000,000 by the Welfare Federation for those hospitals and institutions which joined the organization was opened, November 14 and was to end November 18, but has been extended until November 23. The amount pledged so far totals $1,320,735.

## PHILIPPINE ISLANDS

**Physical Director of Manila Police.**—The city council has created the position of physical director for the Manila police. It is understood that the director will be a physician.

**Personal.**—After spending some time in the United States visiting the leading colleges and hospitals, Dean Fernando Calderon has returned to the College of Medicine, University of the Philippine Islands.

**"La Gota de Leche."**—This institution, established in the city of Cebu for the free distribution of milk, has estimated that a child can be maintained at a minor cost of 5 pesos ($2.50) a month. Funds for the continuation of the work are being obtained by donations, benefit entertainments and nominal fees.

**Establishment of an Opium Hospital.**—On account of recent police drives against opium dens in Manila, a Chinese benevolent corporation has requested permission to establish a hospital especially adapted for treatment of opium addicts. It is expected that the hospital will be placed under government supervision.

**Monthly Health Bulletin.**—Beginning with last July, the Philippine Health Service has issued a monthly bulletin containing information regarding activities of the health service as well as health statistics. Drs. Salvador V. del Rosario, L. Lopez Rizal, T. P. Bantug and M. V. Argüelles have been designated as members of the publication committee.

**Laboratory Technicians.**—The Philippine Islands health service has appointed sanitary inspectors to be trained as technicians in laboratory work under the immediate direction of the provincial sanitary physicians. They are now being given special courses in laboratory technic and clinical microscopy at the San Lazaro Hospital and the University of the Philippines.

## SOUTH CAROLINA

**Physician Sentenced to Federal Prison.**—It is reported that Dr. Joe M. Owens, Cross Hill, pleaded guilty, November 4, in the federal court to having violated the Harrison Narcotic Law, and was sentenced for one year to the federal prison in Atlanta.

## TEXAS

**Physician Convicted and Paroled.**—It is reported that Dr. Darling L. Peeples, Navasota, convicted in the federal court on two charges of violations of the Harrison Narcotic Law, was released on the promise of State Senator H. L. Lewis, Judge S. W. Dean and Mayor Gordon Boone of Corpus Christi, to be responsible for placing Peeples in a sanatorium and keeping the court advised.

## WASHINGTON

**Hospital News.**—The Newport Community Hospital Association has been formed for the erection of an up-to-date hospital to be established in Newport.——The Snoqualmie Falls Lumber Company opened its new hospital last month, with Dr. Richard T. Burke, Northend, as chief surgeon.——The Detention Hospital, maintained by the Seattle City Health Department for women afflicted with venereal disease, has been moved from the city jail building to the King County jail building, where space will be available for twenty-five patients.——Physicians of Puyallup, Sumner and Orting have started a campaign to build a twenty-bed hospital at Puyallup. They will have the aid of the commercial club of Puyallup, and they expect to expend $50,000.

## CANADA

**Opening of New Medical Building.**—The new medical building of Western University Medical School, London, Ontario, has been completed and was opened for public inspection, November 15. November 17, came the official opening; and on November 18 an address to the faculty, students and alumni was made by Prof. A. B. Macallum, department of biochemistry, McGill University. At a reception on the evening of November 18, a portrait of the late Dr. H. A. McCallum was unveiled.

**Western Ontario Academy of Medicine.**—A session was held, November 4, at which Dr. Lewellys F. Barker, Johns Hopkins University, Baltimore, conducted a medical clinic, taking in all four cases, which gave him the opportunity of presenting views on nephritis, in association with syphilis, epilepsy and encephalitis, and also on the subject of endocrine influence. Dr. Barker, with the lieutenant-governor of Ontario, was a guest at a luncheon given by the Canadian Club. His address on that occasion was a call for unity between the two countries, one of which had given him birth and the other his field of professional activity.——A special session of the academy was held, November 8, to greet Sir William Taylor, K.B., F.R.C.S.I., of Dublin, who gave a comprehensive outline of acute intestinal obstruction, with particular reference to the type of intussusception occurring in children. In his reply to the discussion of his paper he touched on the subjects of chronic obstruction and appendicitis.

## GENERAL

**Visitors from Holland.**—Among those visiting America from abroad, recently, have been Dr. Willem Vos, superintendent of the Zuider Ziekenhuis and general director of the psychopathic hospital of Rotterdam, Holland, and Mr. Jan G. Snuif, an architect of the same city. Their object was to study hospitals in Boston, New York, Buffalo, Cleveland, Detroit, Cincinnati and Chicago. They are planning to erect a new hospital in Rotterdam having about 1,300 beds.

**American Physicians Honored.**—The Royal College of Physicians of Edinburgh has recently conferred membership on Admiral William C. Braisted, Washington, D. C., and Dr. Walter L. Bierring, Des Moines, two prominent members of the National Board of Medical Examiners. This honor is in recognition of the efforts of the National Board in promoting a closer relationship between the Old World and the New in matters of medical education. These are reported as the only honorary memberships conferred by the college referred to since 1809.

**Service in Small Industrial Plants.**—At a recent meeting of the board of directors of the American Association of Industrial Physicians and Surgeons, a committee was appointed to formulate a practical plan for supplying an employee health service in small industrial plants. The members of the committee are: Dr. Clare F. N. Schram, Fairbanks Morse Company, Beloit, Wis.; Dr. Clarence D. Selby, National Malleable Casting Company, Toledo, and Dr. Alfred E. Shipley, Brooklyn. The annual meeting of the association will be held, May 22-23, 1922, at St. Louis.

## LATIN AMERICA

**A Gift of the Medical Students.**—A tuberculosis ward to the general hospital in Tegucigalpa, Honduras, was presented by the medical students to celebrate the independence centenary.

**Compulsory Vaccination in Cuba.**—The head of the health department has ordered all head masters to vaccinate all schoolchildren except those who show satisfactory marks of recent vaccination. The necessary amount of vaccine will be supplied by the health department.

**First Woman Professor in Medical School.**—Dr. María Teresa Ferrari de Gaudino is the first Argentine woman to be appointed to a professorship in the University of Buenos Aires. She was accepted through a competitive examination for the chair of gynecology in the faculty of medicine.

**Brazilian Federation of Students.**—At a meeting of the presidents of the students associations of the schools of medicine, pharmacy, dentistry, etc., of Rio de Janeiro, it was decided to establish a Brazilian federation of students to be composed of delegates of all Brazilian college associations.

**Street Named for Living Physician.**—The authorities of Rio de Janeiro have recently changed the name of the street on which is located the Child Welfare Station to Rua Dr. Moncorvo Filho, as this Instituto de Protecção á Infancia is mainly his work, and to it he devotes his constant energy. The Academia Nacional de Medicina passed a vote of thanks to the authorities for this tribute to one of the members.

**Centennial Celebration of the University of Buenos Aires.**—The University of Buenos Aires celebrated the first centennial of its foundation, Aug. 12, 1921. The ceremonies of inauguration took place, Aug. 12, 1821. The direction of the university was placed in the hands of Dr. Antonio Sáenz who in turn commenced to form the different departments and placed them under the supervision of a prefect. In 1828 the school of primary instruction was taken from the university and placed under the control of the Interior Department. In 1876 the university founded a semiannual volume under the name of *Anales*, which was replaced in 1904 by the present *Revista de la Universidad*.

**Personal.**—Dr. P. Escudero has had to resign his editorial work with the *Prensa Médica Argentina* since he has been appointed full professor of clinical medicine in the Buenos Aires University.——Dr. J. C. Segovia, professor of bacteriology and medical entomology in the medical school at San Salvador, has returned from a two years' course of study in the United States.——Prof. E. Bertarelli was the guest of honor at a banquet given by certain physicians of S. Paulo.——Prof. M. Labbé has been elected honorary member of the National Academy of Medicine of Brazil.——Dr. Bachmann was tendered a banquet recently by his friends to celebrate his appointment as chief of the Instituto Bacteriologico of the Argentine public health service.

**Baby Week in Mexico.**—In connection with the centennial celebration of the nation's independence, a baby week was held, September 11-17, at Mexico City. The exhibits were grouped in seventeen different booths, each devoted to some major phase of baby welfare. The exhibit for mothers emphasized those duties and responsibilities which lie outside the home—industrial conditions, rents, poverty, juvenile delinquency and such other problems as the women of Mexico have, so far, given little attention, and a special "Message to Mothers" was distributed from this booth. The exhibit for

fathers dealt primarily with their duties in the home, and the "Message to Fathers" emphasized these points. The exhibit on race and eugenics brought out other aspects of parenthood not covered by the other two exhibits. The subjects in the other booths were much the same as would be found in standard American exhibits. Child welfare demonstrations, the playgrounds, and health plays given by the children attracted large audiences. Medical talks were prepared and delivered by a group of physicians of the city under the direction of the secretario general of the department of health, Dr. Alfonso Pruneda. Birth registration was emphasized, and all children whose births were recorded during baby week were promised special certificates, signed by the president of the republic. Many of the posters for the exhibit were the work of the artist José de Jesús Pruneda and a group of young students from the Escuela Nacional de Bellas Artes. The noted painter Orozco contributed striking posters to the dental exhibit. Heralded by martial bands, a grand *procesión infantil* made a tour of the city with more than a hundred automobiles proclaiming by banners and posters the right of their small occupants to intelligent parents, pure water, clean milk, nurses and welfare stations, adequate housing, registration, vaccination and all the other advantages the modern baby has been taught to demand. Preparation of the parade and the nurses provided were the voluntary contribution of the Red and White Crosses of Mexico.

### FOREIGN

**Contract Practice in Berlin.**—The *Deutsche medizinische Wochenschrift* cites some recently published statistics to the effect that only 3.62 per cent. of the Berlin sickness insurance contract physicians receive more than the "existence-minimum income" from their insurance practice.

**Medical Conference in Lithuania.**—A conference was recently held in Kovno, under the presidency of the prime minister, Dr. Grinius. The object of the conference was to encourage the development of the medical profession in Lithuania, to promote the interchange of scientific ideas and to improve methods of combating tuberculosis and other diseases.

**The Nobel Prize in Medicine.**—The *Nederlandsch Tijdschrift* relates that it is rumored that the Nobel prize in medicine will not be awarded this year, and that the candidates that have been considered most eligible are the English physiologist, Sherrington, the Netherlands professor, Magnus, and the two brain specialists, Henschen of Sweden and Vogt of Germany.

**The Marcel Benoist Prize.**—This prize, amounting to 20,000 francs, is awarded annually by the Swiss government to the scientists of Swiss nationality or domicile who, during the preceding year, have made the most valuable contribution to science, particularly in reference to human life. M. Arthus, a French scientist domiciled in Switzerland, professor of physiology at the University of Lausanne, received the prize this year for his original work on anaphylaxis and immunity.

**Award of the Jenner Medal.**—At a meeting of the epidemiologic section, October 28, the Jenner Memorial Medal of the Royal Society of Medicine was awarded to Sir Shirley Forster Murphy in recognition of distinguished work in epidemiologic research. This medal was founded on the centennary of Edward Jenner's first successful inoculation of cowpox from one human being to another, and has been awarded for preeminence in the prevention and control of epidemic disease.

#### Deaths in Other Countries

Dr. **R. Bonnet,** formerly professor of anatomy at the University of Bonn, aged 71.——Dr. **R. de Gainza,** professor of histology at the University of Buenos Aires and at one time director of the public health service.——Dr. **M. Murphy** of Buenos Aires, until his recent retirement connected with the national board of education.——Dr. **E. R. Schneider,** a well known Danish ophthalmologist.——Dr. **Alfonso Medina,** professor of clinical medicine in the University of Madrid.——Dr. **E. Navarro Ortiz** of Madrid, a naval medical inspector, aged 65.——Dr. **J. Vieira Marcondes** of S. Paulo.——Dr. **F. A. Bainbridge,** professor of physiology, University of London, author of several books on physiology.——Dr. **F. P. Maynard,** lieutenant-colonel, Bengal Medical Service; professor of ophthalmology, Medical College of Calcutta, India, from pneumonia, September 20; at one time editor of the *Indian Medical Gazette.*——Dr. **W. Russell,** formerly of the Royal City of Dublin Hospital, at Ranchi, India, president of the Assam branch of the British Medical Association, 1917.

## *Government Services*

#### Neuropsychiatric Hospital for Public Health Service

Surg.-Gen. Hugh S. Cumming, U. S. Public Health Service, has inaugurated plans for the operation of the Catholic Orphanage, located in the Bronx, New York, as a neuropsychiatric hospital. This institution was recently acquired by the government at a cost of $2,750,000, and new improvements and alterations will be made at a cost of approximately $600,000. The hospital will be equipped, when completed, to care for a thousand patients. The three main buildings of the institution are of brick and unusually well constructed, and are situated on a tract of 32 acres. The plans for alteration contemplate connecting tunnels for the main buildings and installation of general mechanical equipment. The alterations and remodeling will be completed within three or four months, and the hospital will be devoted to the care of mental cases only. Quarters for nursing, dietetic and reconstruction personnel are thoroughly modern, and the hospital will be one of the best equipped of its kind.

#### American Legion Adopts Resolution on Public Health Service Reserve

The movement which has been in progress for several weeks to have legislation enacted to place on a permanent basis the reserve officers of the U. S. Public Health Service has gained force as a result of the resolutions passed by the Convention of the American Legion in Kansas City, Mo. These resolutions, which were printed in the Congressional Record, state in part that:

WHEREAS, Uncertainty of length of service and the consequent inability to provide for prudential considerations of the future cannot fail to impair the morale of reserve officers detailed to duty in the care of the disabled soldiers in the United States Public Health Service hospitals; and

WHEREAS, Because of this uncertainty the efficiency of the treatment of the disabled is impaired because of resignation from the service and the reluctance of skilled surgeons to enter such service. Therefore, be it

*Resolved,* That officers now on duty in the United States Public Health Service hospitals in care of disabled veterans be placed in the regular corps of the United States Public Health Service or upon a similar status, with all the rights and privileges that are provided for officers in the regular army of the United States Public Health Service.

#### Senate Adopts Willis-Campbell Bill

By a vote of 56 to 22, the United States Senate adopted the conference report on the Willis-Campbell bill prohibiting the sale of beer for medicinal purposes. The measure, already having been adopted by the House, now goes to the President for his signature. He is expected to sign the measure within the ten-day period, thus putting an end to the condition prevailing at the present time that permits physicians to issue prescriptions to patients for beer. Because of delay in the passage of the antibeer measure, the Treasury Department recently issued regulations covering the sale of beer as a medicine, and breweries in various parts of the country began the manufacture of beer. Physicians also were prepared to issue prescriptions to the extent of 100 every three months. Had not the bill passed, therefore, the distribution of beer would soon have been in full force. This situation, however, has been abruptly ended by the action of the Senate. There is some question as to the constitutionality of the proposed act, and it is reported that President Harding will send it to the Attorney-General for a decision before finally placing his signature to the measure. This issue of constitutionality is based on the feature dealing with the right of search of private property and other legal questions which were the basis of strenuous and vigorous opposition to its passage in the Senate. The legislation has been before Congress since last June.

#### Association of Public Health Service Reserve Officers Organized

At a meeting recently held in Washington, D. C., there has been organized the Association of reserve officers, U. S. Public Health Service. The purpose of this organization is to promote better cooperation among its members, to establish a high degree of professional efficiency, and to establish the greatest interest in the treatment and care of disabled men and women of the World War. At the initial meeting there were present about forty medical men, who represented more

than 700 reserve officers of the Public Health Service. The following officers were elected by the association: president, Dr. O. Yarnell, St. Louis; first vice president, Dr. C. T. Messner, Washington, D. C.; second vice president, Dr. John P. Wheeler, New Haven, Conn.; treasurer, Dr. A. J. Campbell, Fort McHenry, Md.; secretary, Dr. Bernard C. MacNeil, Washington, D. C.

### Distinguished Service Medals for Medical Officers

Three officers of the Medical Corps of the Army and one former emergency officer in the Medical Corps have been presented with the Distinguished Service Medal by President Harding. The emergency officer was Dr. John J. Moorehead, New York, a colonel in the Medical Corps during the war. Colonel Moorehead was in charge of Evacuation Hospital No. 10 in the American Expeditionary Forces, and was cited for his distinguished service at this hospital. Col. J. R. Kane, M. C., U. S. Army, was given his medal for the organization of the base hospitals and ambulance service in France. Col. Henry A. Shaw, M. C., U. S. Army, was presented the medal for splendid work at the base hospital section at Bordeaux, France, and Lieutenant-Colonel Foster for similar service while in charge of the base section at St. Nazaire, France.

### Federation of Hospitalization

In order to standardize requirements of hospitals operated by the government and to systematize their operation and purchase of supplies, a federal board of hospitalization has been created. The board will purchase hospital and surgical equipment for hospitalization activities of the Army, Navy, U. S. Public Health Service and the U. S. War Veterans' Bureau.

## *Foreign Letters*

### PARIS

*(From Our Regular Correspondent)*

Oct. 28, 1921.

### Creation of a Clinic for the Treatment of Diseases of the Urogenital Tract

Until recently there has been no chair of urology at the School of Medicine of Montpellier. This deficiency has now been supplied by the appointment of Prof. Emile Jeanbrau, who, during a long period of activity, has made a reputation for himself by his studies in urology. He was also president of the twenty-first congress of the French association of urology held recently in Strasbourg.

### Legislation for the Suppression of Abortion

The Conseil supérieur de la natalité et de la protection de l'enfance held a meeting recently, presided over by Monsieur Leredu, minister of hygiene, public charity and social welfare. The council requested the adoption by the chamber of deputies of the bill pertaining to the suppression of abortion, which has already been passed by the senate. In the meantime, while action is being taken on this bill, the council expressed the desire that the authorities use greater vigilance in the suppression of abortion. It requested also that communes be required to furnish quarterly statements in regard to the number of marriages and births, and also of deaths of children under 1 year of age. The council also declared in favor of the elaboration of a code of laws for the protection of children, and also the creation of a French section in the International Association for Child Welfare, the headquarters of which are in Brussels.

### Prizes Bestowed by the Academy of Sciences

The Academy of Sciences has made known its list of prizes and grants awarded in 1921. Among these awards the following may be noted: The Barbier prize (2,000 francs) awarded to Dr. Ernest Sacquépée, professor of the Val-de-Grâce school of applied military medicine and pharmacy, for his work on gas gangrene; the Bréant prize (5,000 francs) awarded to Dr. Dujardin-Beaumetz and to Dr. E. Joltrain (director of the laboratory of the Pasteur Institute) for their work entitled, "Histoire d'une Epidémie Parisienne de Peste"; the Lallemand prize (1,800 francs) awarded to Dr. Georges Guillain, associate professor in the medical department of the University of Paris, and Dr Alexandre Barré, professor in the medical department of the University of Strasbourg, for their work entitled, "Travaux Neurologiques de Guerre," and the Argut prize (12,000 francs) awarded to Dr. Foveau de Courmelles for his studies on roentgen rays and radium in gynecology. The Charles Bouchard annuity fund for scientific research (5,000 francs) has been awarded to Dr. Maxime Ménard, roentgenologist of the Cochin hospital, for his researches in roentgenography.

### Use of Mercuric Chlorid and Solution of Hypophysis by Midwives

It is well known that the incautious use in obstetrics of injections of a solution of hypophysis may seriously endanger mother and child. The Society of Obstetrics and Gynecology of Bordeaux has recently taken up the question and expressed the wish that midwives be prevented from obtaining these preparations in drug stores on their sole request. At the same time, the society considered the dangers resulting from allowing midwives to prescribe mercuric chlorid. The society believes that, at the present time, there is a sufficient number of powerful antiseptics available without placing salts of mercury (mercuric chlorid or cyanid) at the disposal of midwives. Some of them still administer vaginal injections of these medicaments, the danger of which during labor and the sequels of confinement is well known. The Bordeaux society accordingly thought it advisable to submit the question to the Society of Obstetrics and Gynecology of Paris and to ask the latter to take the initiative in presenting a collective request to the competent authorities for a revision of the list of medicaments that midwives are allowed to prescribe, and to insert solution of hypophysis in the list of toxics to be delivered only on a physician's prescription. The question was discussed by the Society of Obstetrics and Gynecology of Paris, which instructed Dr. Le Lorier to present a report to the Bordeaux society. While admitting that mercuric chlorid is not an ideal obstetric antiseptic, Le Lorier believes, however, that on account of the great extent to which it has been used in the past, compliance with the request might awaken doubt and confusion in the minds of old practitioners who are no longer capable of adapting themselves to new ideas. The Paris society agreed with Dr. Le Lorier and declared that it could not comply with the request of the Bordeaux society on this point. On the other hand, as regards solution of hypophysis, the Paris society agreed with the Bordeaux society that pituitary preparations in any form must be considered as dangerous medicaments and that, although they are nontoxic, they should be included in the list of substances not obtainable without a physician's prescription. Midwives will therefore no longer be authorized to prescribe pituitary preparations nor to obtain such for their own practice. This decision was unanimously adopted.

### Serotherapy and Vaccinotherapy in Affections of Bones and Joints

Among the many questions reviewed at the thirtieth French congress of surgery recently held in Strasbourg, the subject of serotherapy and vaccinotherapy in osteo-articular affections is of general interest, as is everything pertaining to

modern methods of biologic therapeutics. One of the essayists, Dr. Louis Delrez of Liége, reviewed the various applications of serotherapy and vaccinotherapy to typhic osteitis, gonorrheal arthritis and staphylococcus and streptococcus affections of the bones and joints. Vaccinotherapy has given good results in the closed types of typhic osteitis, although it is true that experiments have been made in only a few cases as yet. In open osteitis, however, it is almost always necessary to resort to surgical intervention in addition to vaccinotherapy. In gonorrheal arthritis, vaccinotherapy, which is aimed, in fact, at complications only and not at gonorrhea itself, has given inconstant and uneven results. Its specific value seems doubtful, and its effectiveness, if noted, depends probably on the general reaction brought about by the vaccine. This seems to be further indicated by the fact that nonspecific vaccines have sometimes given good results. As regards antigonococcus serotherapy, it has given encouraging results both with intravenous and intra-articular injections, the latter seeming preferable. However, the results of the method are far from constant, and the present tendency is to go back to surgery and to perform early arthrotomy followed by mobilization. Concerning osteo-articular affections, pure antistaphylococcic serotherapy is practically unknown. Antistreptococcic serotherapy gives very inconstant results. Likewise, vaccinotherapy is far superior to serotherapy. Its action is shown by modifications of the exudate, which becomes serous by degrees on account of the rarefaction of bacterial elements. This aseptic process occurring in the foci is of great practical importance. It allows early secondary suture and dispenses with drainage, without affording us, however, absolute assurance that fistulization will not occur, despite the good results otherwise obtained. As a rule, however, vaccinotherapy eliminates surgical intervention or confines it to the incision of a subperiosteal abscess or the removal of a few sequesters. The co-essayist, Dr. R. Grégoire, associate professor in the medical department of the University of Paris and surgeon to the Paris hospitals, confined himself in his paper to the results he obtained with vaccinotherapy in sixty-three of his own cases, regularly followed up. Discussing the respective merits of massive injections of several billions of bacteria at one time (the Delbet method) and of progressive injections, he declared himself in favor of the latter, which, though the effect may be slower, are less dangerous. Grégoire extols the prolongation of the treatment for two or three months, at the rate of one injection weekly after recovery, in order to establish immunization more fully. Injections should be given subcutaneously or intramuscularly (deltoid or gluteal region). The indications and results vary with the clinical type. Thus, in septic types vaccinotherapy can be but an adjuvant to the operation, which should be performed without delay. We must add that, even in this restricted application, vaccinotherapy often produces no effects, and in eleven cases of this type Grégoire recorded nine deaths. Grégoire remains convinced that vaccinotherapy is most successful in acute and subacute forms, in spite of contrary opinions from various surgeons. But great caution is necessary, as the precise indications are not as simple as one might suppose. The essayist held that only the surgeon has the right to try vaccinotherapy, as he must be ready at any moment to resort to the knife if circumstances should demand it. When vaccinotherapy can be employed (and it must be noted that a precarious condition of the heart and kidneys constitutes an absolute contraindication), we must differentiate between cases in which vaccine alone will be sufficient and those in which an incision is indicated. In incipient cases, in subperiosteal abscess, and even in confirmed suppuration of the bone, we have a right to expect much from the vaccine, if the general condition of the patient is still fairly good. On the other hand, in articular complications, we cannot derive much benefit from vaccine and in most cases we shall have to resort to arthrotomy. When sequesters are present they must be removed, and surgery alone can accomplish this. But also in such cases vaccinotherapy is a valuable aid; for, the virulence of the infection being thus diminished, it becomes possible to operate *à froid* (during intervals between attacks), to fill in the bone cavity immediately and to close the wound, instead of draining it for several months. In chronic forms, we must differentiate between closed chronic osteomyelitis and fistulous chronic osteomyelitis. The former often requires no treatment, but it may present acute or subacute recurrences that vaccine will cause to retrogress. We may remark, however, that an ordinary moist dressing and rest produce the same effect; thus vaccinotherapy is in such cases of doubtful value. In fistulous osteomyelitis, vaccinotherapy appears to be even less indicated, since surgical intervention is indispensable in such cases, and also on account of the frequent presence in old cavities of collections of bacteria on which vaccine has no effect.

## BUENOS AIRES

*(From Our Regular Correspondent)*

Oct. 21, 1921.

### Smallpox in Chile

The smallpox epidemic in Chile seems to be serious. It has already spread to the boundary provinces of San Juan and part of Mendoza although it is on the decline there. In our country, in the cities and coast provinces, people trust completely to vaccination, a measure through which the disease was eradicated many years ago. When some cases occurred at San Juan there was, however, a general alarm, due partly to the fact that there were some chickenpox foci in the province of Buenos Aires. The demand for smallpox vaccine has been so considerable that it has been impracticable to fill all the orders although about 22,000 doses are being delivered daily.

### Antituberculosis Conference

On October 21 the inaugural session of the Third Argentine Conference on Antituberculosis Prophylaxis will be held at the Argentino Theater of La Plata. The conference was organized by a committee presided over by Dr. Angel A. Alsina. Two hundred and ten physicians and many scientific institutions will participate. Dr. Araoz Alfaro, president of the Argentine League Against Tuberculosis, will give a lecture on "Harmful Errors and New Ideas in regard to Tuberculosis." Special reports will be presented on: 1, etiology of tuberculosis; 2, mortality and morbidity statistics in Argentine; 3, means of fighting the disease; 4, economic aspects of the campaign; 5, present status of the campaign; 6, compulsory health insurance; 7, friendly societies' insurance; 8, sanitation of lodgings; 9, cheap and hygienic homes. In connection with the conference there will be an exhibition at which numerous scientific and public health organizations will be represented.

### Aid to Backward Children

Prof. Domingo Cabred, who has been in charge of relief work for insane people and backward children, gave a lecture before the Bar Association October 18. He mentioned especially, the asylum for backward children located at Torres, province of Buenos Aires, and the reformatory at Olivera, Buenos Aires. Backward children are classified into two groups, inmates and educable. The latter receive special teaching. The treatment of the inmates is carried out at Torres, in an asylum divided into four large sections, with 250 hectares (about 617 acres) of ground. There are 800

patients. Educable children learn several occupations and have their own school, church, gymnasium, moving picture house, etc. They raise poultry and pigs, have vegetable gardens, coal mines, etc. All the work is done in the open air, without any fences about the grounds.

## BERLIN

*(From Our Regular Correspondent)*

Oct. 26, 1921.

### Influence of the War on the Determination of Sex

The old question whether or to what extent the war has exerted an influence on the sex of the new-born continues to be discussed. According to an article emanating from the Tübingen University Women's Hospital, no increase in male births could be noted in Wurttemberg, and, judging from the previous statistics issued for the whole empire, no such increase can be anticipated. In this connection it must be borne in mind that a sufficiently large number of cases must be available in order to establish conclusions that are at all reliable. It is noteworthy that, according to the observations of the Tübingen hospital, there was a very wide variation in the number of male births during the years of peace. In 1899, in a series of 381 births, the figure representing the proportion of boy births was 86.9, while in 1919, in a series of 441 births, the figure for male births was found to be 125.4, or a difference of 38.5 in approximately equal series and with the same conditions prevailing. From this it may be seen how easy it is to draw false conclusions. For this reason, the relationship of the number of male and female births, respectively, to the age of primiparas must be considered with caution. Ahlfeld, formerly gynecologist in the Marburg University Women's Hospital, has formulated these hypotheses: 1. Very young primiparas give birth to an excess of boys. 2. Primiparas, during the height of the fertile period, produce more girls than boys. 3. In the case of primiparas just past 30 there is, with increasing age, a greater tendency to male births. However, Ahlfeld, later on, suggested certain modifications of these propositions, and more recent investigators have reached quite different conclusions. In the case of multiparas, no influence of the age of the mother on the sex has been definitely established. If we may apply the observations of stock breeders, the condition of nutrition in the parents might be expected to have an influence in determining the sex in man. However, Düsing has investigated the results following good and bad harvests and with reference to the fluctuation in the prices of provisions, but was unable to secure any clear evidence of such differentiation. Nor has the war, as yet, shed any new light on the question.

### Incidence of Cancer

From the statistical report on the causes of death in the German empire for the years 1914-1918, it appears that in 1914 the deaths from cancer in men were 23,494, whereas in 1918 the number had dropped to 21,804. However, it should be noted that for women there was in reality an increase (in 1914, 28,694 deaths; in 1918, 29,361 deaths). It is thus evident that no particular increase in the mortality from cancer can be established. Whereas, during the period preceding the war, the mortality from cancer took a constant upward turn (in 1904, 6.2 per 10,000 of population, and in 1914, 8.2 per 10,000), the recent statistics furnish no evidence of an increase. However, these figures cannot well be used as the basis for any general conclusions, for, in spite of a general decrease of fatal cancer cases, there has been an actual increase in certain sections; for example, in Bavaria 9.8 deaths per 10,000 of population, while Prussia's record is 7.1 per 10,000.

### New Head of the Serodiagnostic Department of the Behring Institute

Professor Dr. Dold, formerly an assistant in the Institute for Experimental Therapy in Frankfort-on-the-Main and privatdozent in hygiene and bacteriology at the University of Frankfort, has accepted a position in the Behring Institute for Experimental Therapy in Marburg, of which Geheimrat Uhlenhuth is the director, and has taken over the management of the serodiagnostic department. From 1908-1910, Professor Dold was demonstrator of bacteriology and comparative pathology at the Royal Institute of Public Health in London. He later became first assistant at the Institute for Hygiene and Bacteriology in Strasbourg, and in 1912 secured a professorial chair. In 1914 he was granted leave of absence to accept a temporary position as professor of hygiene and bacteriology in the German Medical and Polytechnic School for Chinese, in Shanghai. In 1919, he was forced out of his position in Shanghai, whereupon he became an instructor in the medical department of the University of Halle, assuming at the same time the duties of department head in the Hygienic Institute. A year later he was called to Frankfort, as stated.

### A German Expedition to Combat Trypanosomiasis

The *Deutsche medizinische Wochenschrift* states that a scientific expedition under the leadership of Professor Kleine is to leave soon for Africa, where certain new remedies which it is hoped will be effective in trypanosomiasis in man and animals are to be given a trial. Professor Kleine was an assistant of Robert Koch on his expeditions for the study of coast fever and the African sleeping sickness, since which time he was, until his work was interrupted by the war, the head of the mission for combating trypanosomiasis in German East Africa. He was the first to succeed in transmitting experimentally trypanosomiasis to apes through the natural intermediate host, the genus Glossina, thereby clearly demonstrating the development of the causative agent in such flies. The next objective is North Rhodesia. Through the courtesy of the British government the expedition will enjoy the privilege of carrying on investigations in the British colonies.

## *Marriages*

BENJAMIN BRUCE BRUMBAUGH, Elkridge, Md., to Miss Mirian Lee Smith of Baltimore, at Washington, D. C., November 5.

WILLIAM B. KENWORTHY, Capt., M. C., U. S. Army, to Mrs. E. E. Pritchett, at Fort Amador, C. Z., September 27.

FRANK CARLETON THOMAS, Roanoke, Va., to Miss Marjorie Winthrop Griffiss of Pikesville, Md., November 14.

ROBERT REID, JR., North Tarrytown, N. Y., to Mrs. Helen Dinkle Spencer, at Schenectady, September 24.

LEO ALEXANDER DE MERCHANT, Seattle, Wash., to Miss Cora J. Philipps of Enumclaw, October 15.

FRANK W. SMITH, Williamsburg, Ohio, to Miss Loretta McKenzie of Cincinnati, November 15.

JOHN JEREMIAH O'LEARY, Olympia, Wash., to Miss Mary L. Hall of Kent, Wash., October 12.

BURTON A. BROWN, Seattle, Wash., to Miss Adeline Perry of Iowa City, Iowa, October 10.

JOHN WOLFGANG GEIGER, La Salle, Ill., to Miss Gertrude M. Cahill of Peru, Ill., October 15.

CHARLES JAMES HIGLEY, Brooklyn, to Miss Louise Lane of Towanda, Pa., November 15.

SIDNEY HYMAN BAROVICK to Miss H. Schlansky, both of New York City, November 1.

BENJAMIN H. ALTON to Miss Elizabeth Moen, both of Worcester, Mass., November 7.

# Deaths

**Charles Elihu Quimby** ✠ New York; New York University Medical College, 1878; a member of the medical faculty of New York University, and since 1895 visiting physician at the City Hospital; president of the American Climatological Society, 1909, and member of the New York Academy of Medicine; consulting physician to the Manhattan State and Jamaica Hospitals, New York; died, November 6, from cerebral hemorrage, aged 68.

**Austin Wilkinson Hollis** ✠ New York; College of Physicians and Surgeons, New York City, 1890; at one time professor of clinical medicine, Columbia University, New York, and for years in charge of the New York Dispensary. He was a member of the New York Academy of Medicine and the American College of Physicians, and was the author of several medical textbooks; died, November 6, from cerebral hemorrhage, aged 52.

**Charles Christopher Byrne** ✠ Washington, D. C.; University of Maryland, Baltimore, 1859; entered the U. S. Army as assistant surgeon in 1860 and ultimately attained the rank of assistant surgeon general; was retired by operation of the law in 1901 with the rank of colonel and advanced to the grade of brigadier general under the act of 1904; member of the Order of the Loyal Legion; died, November 12, aged 84.

**William A. Dickey,** Toledo, Ohio; Louisville (Ky.) Medical College, 1877; president of the Toledo Academy of Medicine; president of the Northern Tri-State Medical Association, 1913; founder and formerly professor of the principles and practice of medicine, Toledo Medical College; at one time attending physician, St. Vincent's Hospital; died, November 4, aged 71.

**Loomis LeGrand Danforth,** New York; College of Physicians and Surgeons, New York City, 1874; emeritus professor of obstetrics and head of chair of obstetrics, New York Homeopathic Medical College and Flower Hospital; member of the New York Academy of Pathological Science; died, November 7, from cerebral hemorrhage, aged 72.

**Joseph M. Ratliff** ✠ Cincinnati; Cincinnati College of Medicine and Surgery, 1878; veteran of the Civil War; superintendent of the Grandview Sanatorium since 1914; fellow of the American Psychiatric Association; served during the late war on the district advisory board; died, November 5, from chronic myocarditis, aged 73.

**Cary Breckenridge Gamble, Sr.,** Baltimore; University of Maryland, Baltimore, 1846; also graduate of the University of Virginia, Charlottesville; Confederate veteran; member of the Medical and Chirurgical Faculty of Maryland; practitioner for half a century; died, November 8, at Gamble Hill, Md., from senility, aged 97.

**Elizabeth Angela Riley** ✠ Boston; Tufts College Medical School, Boston, 1897; since 1913, instructor in gynecology and abdominal surgery at her alma mater; at one time superintendent of the Woman's Charity Club Hospital, and founder of the Bay State Hospital, Boston; died, October 27, in Allston, aged 52.

**William Henry Fox** ✠ Washington, D. C.; Columbian University, Washington, 1884; member of the American Ophthalmological Society; former surgeon to the Episcopal Eye, Ear and Throat Hospital and associate surgeon to the Emergency Hospital, Washington; died, November 3, aged 64.

**Mortimer Willson** ✠ Port Huron, Mich.; Detroit Medical College, 1874; president of the Port Huron Hospital Association for ten years; died suddenly, November 10, on the golf course, from cerebral hemorrhage, aged 74.

**George J. Burns,** Dayton, Wash.; Western Homeopathic College, Cleveland, 1865; Civil War veteran; practitioner for more than fifty years; died, November 4, in the Ohio Soldiers' and Sailors' Home, Sandusky, Ohio, aged 81.

**John J. Robinson, Plattsburg,** N. Y.; University of Vermont, Burlington, 1885; member of the Vermont State Medical Society; died suddenly, November 2, from cerebral hemorrhage, at the Y. M. C. A., Albany, aged 65.

**Charles Lewis Moir,** Chicago; Kentucky School of Medicine, 1903; assistant superintendent, Louisville (Ky.) City Hospital; served in the World War; died, November 9, at El Paso, Texas, from tuberculosis, aged 39.

✠ Indicates "Fellow" of the American Medical Association.

**Frederick Edward Easton,** Syracuse, N. Y.; Long Island College Hospital, Brooklyn, 1884; member of the Medical Society of the State of New York; died suddenly, November 12, from cerebral hemorrhage, aged 60.

**Louis J. Pelletier,** Ludington, Mich.; Laval University, Quebec, Canada, 1887; member of the Michigan State Medical Society; died suddenly in his office, November 7, from cerebral hemorrhage, aged 56.

**Franklin Matthews,** Philadelphia; Jefferson Medical College, Philadelphia, 1872; practitioner for nearly fifty years; member of the Medical Society of the State of Pennsylvania; died, November 29, aged 73.

**James Peter Boyd,** Larchmont, N. Y.; Long Island College Hospital, Brooklyn, 1875; practitioner for nearly half a century at Akron, Ohio; died suddenly, November 10, from heart disease, aged 70.

**Roy Leslie Barr,** Buffalo, N. Y.; Hahnemann Medical College and Hospital of Chicago, 1908; assistant physician, Gowanda State Homeopathic Hospital, Collins, N. Y.; died, November 3, aged 37.

**William W. Dickie,** Richmond, Va.; Medical College of the State of South Carolina, Charleston, 1857; practitioner for over fifty years; died, November 4, at the home of his daughter, aged 87.

**James F. York,** Portsmouth, Ohio; Eclectic Medical Institute, Cincinnati, 1895; for ten years mayor of Kenova, W. Va.; died, November 3, at the Palace Hotel, Cincinnati, aged 55.

**John F. H. Duff,** Shelbyville, Ky.; University of Louisville, 1878; died, October 30, in the Old Masons' Home, from injuries received when he was struck by an automobile, aged 74.

**Rupert Folger** ✠ Whitestone, L. I.; Long Island Hospital College, Brooklyn, 1898; visiting physician to the Flushing Hospital, L. I., where he died, November 13, from pneumonia, aged 45.

**John Fitch Dove,** Chicago; Meharry Medical College, Nashville, Tenn., 1918; member of the Chicago Dental and Pharmaceutical Society; died, November 6, from tuberculosis, aged 28.

**George W. H. Moore,** Chelan, Wash.; University Medical College of Kansas City, Mo., 1896; died, October 31, after a long illness, at the Sacred Heart Hospital, Spokane, aged 64.

**Albert Wallace Henderson,** Nelson, British Columbia; Manitoba Medical College, Winnipeg, 1908; died recently from injuries received in an automobile accident, aged 35.

**Charles Vincent Eads,** Arthur, Ill.; Barnes Medical College, St. Louis, 1899; was drowned, November 14, when his car overturned into a ditch near Decatur, Ill., aged 50.

**Charles Polhill McCall,** Reidsville, Ga.; University of Georgia, Augusta, 1883; Confederate veteran; died, October 16, at the home of his son, at Sylvania, Ga., aged 78.

**Robert F. Hayes,** Freeport, Ill.; University of Pennsylvania, Philadelphia, 1858; practitioner for more than half a century; died, November 6, from senility, aged 89.

**James Monroe Beyer,** Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1883; died, October 31, at Bustleton, from pneumonia, aged 73.

**Josiah E. Cooper,** Springfield, Ohio; Eclectic Medical Institute, Cincinnati, 1896; was found dead in bed, November 3, from valvular heart disease, aged 52.

**Edward H. Rinkel,** East St. Louis, Ill.; Missouri Medical College, St. Louis, 1882; died in October, at the home of his brother, Medford, Okla., aged 64.

**Charles N. Dunn,** Centralia, Ill.; Hahnemann Medical College and Hospital of Chicago, 1878; died recently from carcinoma of the rectum, aged 70.

**Eugene Sawyer,** Chicago; Hahnemann Medical College and Hospital of Chicago, 1882; died, October 20, after a long illness, aged 85.

**William P. Ryan,** Decatur, Ill.; Bennett Medical College, Chicago, 1897; died, October 27, from edema of the larynx, aged 51.

**Moses Roberts,** Fincastle, Ky. (license, Kentucky, 1899); died, September 21, from senility, aged 84.

**Stiles H. Dunbar,** Athens, Ga.; University of Georgia, Augusta, 1906; died, October 12, aged 36.

**George W. Kirkpatrick,** Lafayette, Ind. (license, Indiana, 1897); died, September 22, aged 86.

# The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

## PHILIP RAHTJEN AND HIS DISCOVERIES

Recent newspaper reports regarding the alleged "discovery of the Germ of Pernicious Anemia" and the development of "an antitoxin and serum" by Dr. Philip Rahtjen of Pasadena, California, have brought inquiries of which the two that follow are typical. This from a physician in Indiana:

"Please let me know about the supposed recent discovery of Dr. Philip Rahtjen concerning pernicious anemia. The information I have is from a newspaper clipping of October 21, Pasadena, California. Kindly omit my name."

A New York physician writes:

"If you could send me any information as to the enclosed I would appreciate it. The article impresses one as absolutely inconclusive. However, I promised the patient I would investigate the matter."

The enclosures referred to consisted of a reprint and a letter from "Ph. Rahtjen, M.A., Ph.D.," Pasadena, Calif., both of which had been sent to a layman who had written to Rahtjen. The reprint was a translation of a brief article by Rahtjen "On the Etiology of Idiopathic Anemia" translated from the *Centralblatt f. Bakteriologie Parasitenkunde u. Infektionskrankheiten*. Rahtjen's letter to the layman read:

"Your inquiry relative to my isolation and classification of the Germ of Anemia received.

"I herein enclose my paper published in August in the *Central Mazazine of Bacteriology*.

"I have succeeded in immunizing goats against the Germ therein described. Five thousand injections of the Serum have been given. Three hundred cases diagnosed as Anemia and Chlorosis were treated under observation. Six cases of Pernicious Anemia were observed under treatment. All responded favorably.

"The Serum is at your disposal from my laboratory here for the use of your physician. The price is five dollars for twelve ampoules each containing 1 ccm., the amount of one injection.

"The treatment consists of intramuscular injection every second day accompanied with a nitrogenous free diet, preferably milk diet. Your attending physician should very easily give them."

Just what Rahtjen's serum is we do not know. Nor have we been able to find any information on the subject in any available medical literature. In fact, a rather careful search of American medical literature for some years past fails to reveal any article by Rahtjen on any subject.

Philip Rahtjen is not a physician. In the Propaganda files is a circular issued in 1917 by the "Rahtjen Tuberculosis Sanatorium" of San Francisco, Calif. This exploits "The Rahtjen Cure for Tuberculosis" and tells of "The Discovery of Dr. Philip Rahtjen." The circular states that:

"Dr. Rahtjen studied in Heidelberg, Berlin, Munich, Marburg, and Rostock, Germany, from which latter school in 1904, he graduated in chemical pathology as Doctor of Philosophy. He became assistant professor of pathology at the Imperial Biological Station at Heligoland, and was later appointed assistant to Dr. Piorkowsky, head of the *Deutsche Schutz und Heilserum Gesellschaft*."

The same circular summarizes the potentialities of "Rahtjen's Cure for Tuberculosis" thus:

"The remedy seems to cure tuberculosis in all its forms with equal celerity and certainty. The evidences indicate that it does not matter how far the disease has progressed, if there be tissue of the attacked organ remaining sufficient to sustain life, the disease can be wholly eradicated and the patient restored to health. This is indicated alike in tuberculosis of the lungs, of the throat, of the bladder, of the kidneys."

The booklet stated further that patients might be treated at one of two places: at the offices of the sanatorium in the city of San Francisco, or at the sanatorium itself near Glenwood. The cost of treatment at the sanatorium was to be $1,000, which would entitle "the patient to residence and attention there for four months." According to the leaflet, "This is regarded as a period sufficient to restore the patient to health whatever be the stage of his disease; provided only, as we remark, that he has enough left of the infected organ to sustain life with the T. B. expelled."

"At the end of four months the patient is sent to his home, not alone relieved of his disease, but in a highly vigorous state of health."

All this, as stated previously, was in 1917. And yet people are still dying of tuberculosis!

In March, 1920, Rahtjen (so the newspapers have it) was offering a "New-Life Fluid." According to a San Francisco paper Dr. Philip Rahtjen "announces the discovery that by the injection of secretions from the ductless glands the human body may be reinvigorated." The paper described the discovery "as a long step forward in the fight to counteract old age" and stated that a syndicate was being formed by Rahtjen and others to "produce the extract in such quantity that it may be available for every one." The newspaper article showed the learned doctor in a laboratory apron in the characteristic pose of the newspaper "scientist" pouring something from a beaker into a test-tube—and gazing intently at the camera while doing it! This was in March, 1920; yet people still grow old.

Within the last month the *Los Angeles Examiner* has heralded some more wonderful accomplishments of Rahtjen. According to this paper Rahtjen has:

1. Isolated the "germ of pernicious anemia."
2. Found a "serum" for the cure of this disease.
3. Discovered the secret of human virility.
4. Evolved a fluid "from the glands of selected bulls and cows" which will "restore 'pep' for worn-out human bodies! Give added weight, clearer eyes, brighter minds, quicker bodies and a generally 'firmer grip' on oneself!"

This "amazing discovery" was, according to the Los Angeles paper, the culmination of "five years of continuous study" and had only just been revealed by Rahtjen.

"Dr. Rahtjen has for years been working silently in a bio-chemical laboratory in Pasadena, surrounded by microscopes, scales, test-tubes, acids, alkalis, reagents and all the accompanying stage settings that spell bio-chemical science."

All of these wonders might still have been a closed book to the public had not "friends" of Dr. Rahtjen brought the matter to the attention of the *Examiner:*

"Dr. Rahtjen yesterday, with the usual reserve of the ethical scientist, was disinclined to talk of his work until publication of it in a scientific journal."

Fortunately for a palpitating public the *Los Angeles Examiner* "was able to learn the essence of his study" and pass the information on. It seems from this newspaper report that Rahtjen first made his extracts from the glands of goats and sheep but these extracts "were found to be too strong." As a result "Dr. Rahtjen is now using the glands of specially selected Mexican bulls and cows." The male patients who are "weak, uninterested in life, unable to concentrate in thought" are given the extract of bull; the female patients who are in a similarly deplorable condition receive an "injection of the cow gland extract."

We have not yet learned whether the *Los Angeles Examiner* has deprecated Dr. Rahtjen's use of Mexican bovines. Remembering the attitude of the Hearst papers towards all things Mexican, one may look for the suggestion that Mr. Rahtjen use 100 per cent. American bull.

# Correspondence

## "ANESTHESIA IN NOSE AND THROAT WORK": DEFENSE OF PROCAIN

*To the Editor:*—Having read the report of the Committee on the Advantages and Disadvantages of the Various Local Anesthetics in Nose and Throat Work, and of the deaths caused by procain (THE JOURNAL, Oct. 22, 1921, p. 1336), we feel it our duty to say something in defense of this most valuable drug.

Since 1913 we have used novocain, or, as it is now called, procain, in oral surgery practice, in 2 per cent. solutions, in amounts varying from 2 c.c. to 20 c.c., each cubic centimeter of procain containing 0.00005 gm. of epinephrin. The operations performed under this anesthetic ranged from the simple extraction of a tooth, to the resection of the jaw for a malig-

nant tumor. We have made about 20,000 injections in private practice and some 30,000 in hospital practice. We have also witnessed about 15,000 more. The ages varied from 4 to 86 years. We have injected patients suffering with cardiac disease in all its stages, those suffering from nephritis, diabetes, arteriosclerosis, pulmonary tuberculosis and asthma, one patient having a systolic blood pressure of 280. In none of these cases, despite the ages of the patients or the condition of their health, has there been a fatality. The only untoward symptoms following the injections have been pallor, slight tachycardia, pains in the back, and in one case tremors of the extremities. The longest time that these symptoms lasted was five minutes. After these symptoms passed, the patient felt perfectly well and was operated on successfully. In one case of exophthalmic goiter the patient was greatly distressed, complaining of pains in the back and cramps in the lower abdomen. This attack lasted about three minutes and then the patient felt well again. We attributed this attack to the epinephrin in the solution, since the patient, having an exophthalmic goiter, the epinephrin caused the same reaction we would expect in the Goetsch test for hyperthyroidism.

We are at a loss to account for the deaths from procain that are listed in the report. What was the condition of the patient before the injection of the drug? Maybe the injection was incidental to the death. Perhaps the operator was careless with his solutions. We would suggest a more thorough explanation of the cause of the deaths of these patients. A report of this kind may serve to discourage men from using a drug that has proved a blessing to all users of local anesthesia.

Lester Richard Cahn,
Joseph Levy,
New York

## THE BEST METHOD OF TYING THE UMBILICAL CORD

*To the Editor:*—In 1896, when I was resident obstetrician at the Sloane Hospital for Women, it was our custom to ligate the cord about three-fourths inch (2 cm.) from the abdomen with a simple square knot. This method was continued until the day came when a new-born infant bled to death through the slipping of a ligature. In a conversation with Dr. L. E. La Fetra, who had just completed his service at the Sloane Hospital, and who at that time was a member of the house staff of the New York Nursery and Child's Hospital, the unfortunate experience was related, and Dr. La Fetra suggested the method which was in use at the nursery; a method so simple and so efficient that we introduced it at the Sloane Hospital, and have used it in private and hospital work ever since. The method is as follows: The cord is first clamped and cut in the usual way, or, if no clamps are used, a square knot is applied to the cord about three-fourths inch (2 cm.) from the abdomen, after which the cord is cut about a quarter of an inch (6 mm.) from the ligature. The jelly is then squeezed out from the cut end of the cord. The two ends of the ligature are then held up, and a knot is tied over the end of the cord, the tape being carried down between the two umbilical arteries, one of them being ligated. The ends of the ligature are then carried around the cut end of the cord in such a way as to secure the other artery. The ends of the ligature are then carried completely around the cut end and tied in a square knot.

The ligation is sometimes facilitated by seizing one of the arteries with a small clamp; but, with a little patience, one can apply the ligature without it.

An experience of twenty-five years with the method justifies me in stating that hemorrhage has never occurred: the procedure is simple and most satisfactory, and I believe that the technic is by far the safest and best for the ligation of the umbilical cord.

George L. Brodhead, M.D., New York.
Visiting Obstetrician, Harlem Hospital.

## THE HOSPITAL AND ITS NECROPSY PERCENTAGE

*To the Editor:*—In The Journal, Oct. 8, 1921, page 1198, is published a letter describing the progress made at the Philadelphia General Hospital in obtaining a high percentage of necropsies. The same problem is being met in an institution in which the securing of necropsies is even more difficult than in a large municipal institution.

The institution is one of 400 beds, including a private ward, and is supported to a large extent by private endowment. Postmortem examinations are in charge of a resident pathologist, but the staff has every opportunity to assist in making them, and to examine the material, both in gross and microscopically. Formerly requests for necropsies were left in the hands of the executive office. Recently the matter has been entrusted to the house staff, a policy which has resulted in a marked increase in the number of necropsies, as shown by the following figures:

| Year | Number of Deaths | Number Necropsies | Per Cent. |
|---|---|---|---|
| 1915 | 382 | 73 | 19 |
| 1916 | 343 | 54 | 16 |
| 1917 | 367 | 60 | 16 |
| 1918 | 458 | 27 | 6 |
| 1919 | 402 | 41 | 10 |
| 1920 | 398 | 105 | 29 |
| 1921 (10 months) | 377 | 92 | 24 |

The low figure for 1918 might possibly be attributed, in part, to the war; but the real explanation undoubtedly lies in the fact that it is only within the last two years that a really consistent and conscientious effort has been made to obtain as high a percentage of permissions as possible.

The percentages obtained by the various services in the hospital in 1920 are instructive:

| | Percentages | Deaths | Necropsies |
|---|---|---|---|
| Medical service | 31.5 | 99 | 31 |
| Surgical service | 31 | 42 | 13 |
| Pediatric service | 21.5 | 23 | 5 |
| Private pavilion | 21 | 38 | 8 |

As a rule, it seems more difficult to obtain necropsies in surgical than in medical cases. This is due largely to the fact that in the former an operation has already been performed, and the relatives are unwilling to permit further use of the knife. It is interesting and significant that the percentage of necropsies in private pavilion cases was only one-third less than in ward cases. In the private cases, permission is usually requested by the attending physician or surgeon in charge, which has far more weight than a request made by others. That the success of obtaining necropsies depends on the zeal and interest of the various staffs is shown by the figures for the two surgical services, one of which has for the past six months secured permission in 43 per cent., the other in 10 per cent., of the deaths.

There appear to be certain cardinal principles which, if followed, are useful in securing the desired results:

1. Establish what might be termed an "entente cordiale" with that member of the family who, in event of death, is legally authorized to give permission. This has frequently resulted in securing permission before death in hopelessly incurable cases. Persons who at first seem to be bitterly opposed to a postmortem examination will themselves request one when the matter is presented properly.

2. Ask for permission in every case of death. It is only by repeated necropsies that pathology can make progress.

3. Request permission immediately after death. A close relative, when most keenly affected and grieved by the death of one near and dear, is at that moment more willing to consent than at any other time. Later consideration or subsequent discussion with others almost invariably results in a refusal.

4. Broach the matter of a necropsy only to the next of kin or the one legally able to give permission. Effort to solicit the aid of an intermediary is usually a mistake and often the cause of failure.

5. Make every effort to obtain the permission before an undertaker has seen the relatives.

The arguments to be employed in each case vary. The one appeal which has had most success with us is that based on the good which may at some time accrue to some one else. Death seems to awaken a sudden outpouring of unselfishness. The presentation of the scientific side, with its addition to medical knowledge, is much less successful. When the diagnosis is uncertain, and a life insurance policy depends on it, an easy argument is afforded by the inability to sign the paper without a knowledge of the exact cause of death. This occasionally applies to the death certificate itself, although the board of health is unfortunately lenient enough to render this argument a rather weak one.

There are cases in which permission cannot be obtained, but the figures given show that constant improvement is possible.

L. G. RICHARDS, M.D., New York.
House Surgeon, St. Luke's Hospital.

## THE CORNELL PAY CLINIC

*To the Editor:*—I beg to acknowledge receipt of your letter concerning the pay clinic which was opened at the Cornell University Medical College, Nov. 1, 1921, and to thank you for your courtesy in offering this opportunity to explain the character of the clinic.

During the past several years the dispensary of the Cornell University Medical College has, in common with practically all other dispensaries, made a charge for the more costly diagnostic procedures; yet it has been operated at a large and increasing expense. Despite the fact that many of the physicians have held teaching positions for which they received salaries, our dispensary, also in common with most others, has failed to give the best possible service to its patients; it has also failed to provide adequate clinical material for teaching, the purpose for which it has been maintained.

The decision to reorganize the clinic and charge fees which will eventually cover the actual expenses, including reasonable salaries for the attending staff, is the outcome of a study of the dispensary situation in New York City made by the Public Health Committee of the New York Academy of Medicine, and has become possible through the cooperation of the Dispensary Development Committee of the United Hospital Fund. This committee has made a large appropriation which, in addition to an amount equal to that which has been expended annually by the college for the support of the dispensary, is to cover any deficit incurred during the first two years of operation.

The clinic is designed for self-supporting persons who cannot afford the fees charged in private offices, particularly by specialists, or for diagnostic consultations, laboratory and roentgen-ray work. Estimates given at a recent meeting of the Section on Medicine of the New York Academy of Medicine were to the effect that at least 2,000,000 persons in New York City are in this class. Patients are charged $1 a visit; medicines, roentgen rays, laboratory service and appliances are furnished at cost. The clinic includes a diagnostic service for patients referred by physicians at a fee of $10, which includes a report and recommendations for treatment to the referring physician.

Each department decides how many new and how many old patients can be properly attended by each member of the staff at a session, and patients are not admitted in excess of that number. Patients usually come according to an appointment previously arranged by the executive staff.

The faculty of the college exercises direct supervision and control over the work, and senior members of the various departments are in daily attendance, for which service they receive no additional compensation.

Great care is exercised in the admission of patients to prevent abuse by those who can afford to pay the fees of private physicians. Every one is submitted to a searching examination into his means, the decision regarding admission being based on the relation between the patient's income, his responsibilities or obligations, and the cost of the needed diagnostic or therapeutic procedure. Those needing hospital or surgical care are sent to institutions with which our staff is affiliated, provided they cannot afford to pay for professional service. If they are able to pay they are given a list of physicians holding appointments in the well-known hospitals, but in no case are they given the name of any physician connected with the college or clinic, and the staff is not allowed to attend any clinic patient outside the clinic.

The chief reasons for establishing the clinic on the basis outlined above may be thus summarized:

1. To provide a larger and richer supply of clinical material for teaching purposes.

2. To render a needed service to a major group in the community.

3. To cooperate with physicians in obtaining an accurate diagnosis for their patients who cannot otherwise procure the services of specialists and laboratory investigations.

4. To reduce and minimize the expense connected with hospitalization and nursing.

5. To advance scientific investigation into the problems of disease, particularly its beginnings.

6. To provide opportunities for young graduates of the college to pursue clinical and laboratory studies under its auspices and receive sufficient compensation so that they will not be diverted to other fields which often pay more but inhibit their development.

WALTER L. NILES, M.D., New York.
Dean, Cornell University Medical College.

## "MELLON ISSUES BEER REGULATIONS"

*To the Editor:*—On reading the communication of Dr. Herz in THE JOURNAL, November 12, I looked for an editorial comment, and was disappointed when I did not find one. I suspect that the editor concluded it beneath his dignity to follow the line of discussion adopted by Dr. Herz.

Dr. Herz evidently has not read carefully the editorial to which he refers, or has purposely misconstrued its meaning in order to "air" his own views on the liquor question. He adopts that old despairing cry of the brewers of "personal liberty," in spite of the fact that all but eleven states have elected, by decisive majorities, to banish the saloon forever. Is the brother for majority or minority rule?

The editor does not state, as Dr. Herz writes, that "every physician who writes a prescription for beer does so from ulterior motives and prostitutes his profession"; and physicians should refer back to this editorial and read it as it is before giving credence to the distorted quotation given above; for if the author did not purposely distort it, he should have read more carefully before attempting to pass it on.

I have a copy of THE JOURNAL of October 29 before me, from which I quote the last paragraph of the editorial in

question, which appears to be the occasion for our New York brother's agitation:

> Self-respecting physicians should and will resent any attempts to prostitute an honorable profession. Physicians who are indifferent as to their professional honor can doubtless reap an abundant harvest, so long as these regulations remain in effect. It is inconceivable, however, that the American people will long tolerate such a travesty.

I believe, also, that the self-respecting physician will resent any attempt to place him in the position of successor to the saloon, although I just read of a physician in one of our large cities who recently wrote more than 7,500 prescriptions for liquor in one month. If this is not besmirching an honorable profession, will our brother tell us what it is?

Dr. Herz also cites us to Dr. Hare to support his stand on the liquor question. In this instance, also, I have Dr. Hare's book before me, and find that he sums up the whole subject in a few words, to the effect that alcohol, far from being a true stimulant, is always a depressant.

I also note what appears to me to be the climax of the entire communication, and that is his statement relative to the comparative potentiality of milk and alcohol for harm; and I can possibly account for the silence of the editor, for I can almost imagine I hear him mutter to himself as he reads it: "Oh, what's the use!"

H. M. MOSER, M.D., Terra Alta, W. Va.

[COMMENT.—Letters commenting adversely on the letter of Dr. Herz were also received from Drs. E. S. Nelson, Canton, Ill.; T. J. Kirk, Pittsburgh; A. C. Hansen, Luther, Iowa; Peyton Ligon, Henderson, Ky.; W. S. Warder, Boulder, Colo., and F. W. Starr, Los Angeles. Supporting Dr. Herz have been Drs. E. E. Hamer, Carson City, Nev., and J. L. Kirby-Smith, Jacksonville, Fla. It is impossible to print all of these, especially since they express personal opinions without advancing fact or argument.—ED.]

## THE PIRQUET SYSTEM OF NUTRITION

*To the Editor:*—In concluding his interesting article on the Pirquet system of feeding children in famine-stricken Austria (THE JOURNAL, Nov. 12, 1921, p. 1541), Dr. Carter remarks that there is "ample evidence that the nutritional status of children fed by this method is markedly improved in a surprisingly short time." One may be pardoned for being skeptical as to whether it was not the food rather than the method that was responsible for the happy results. In other words, one must realize that the conditions in Austria were abnormal and the feeding problem there was not so much one of nutrition as of nourishment—or the lack of it. When the trouble is nutritional, "strict mathematical formulas," even when based on "all the accepted principles of nutrition," fail. Individualization is then the only method of approach. One child may have tuberculosis, another anemia, a third may have a poor environment at home, etc. Where calory-weight will fail, nem-pelidisi will hardly prove an open sesame. We may likewise venture a guess that to a famished Austrian child 1,000 nem by any other name would be just as nourishing.

Therefore, whatever merit the Pirquet system may have for abnormal and catastrophic conditions created by war, siege and famine, when human problems are dealt with *en masse* instead of individually, the introduction of this method in this country at the present time is hardly desirable. For one thing, it would serve to focus the attention of the profession on schematic methods of feeding instead of individualization. In addition, it would create a Babel of misunderstanding among pediatricians besides which the perplexities arising from the use of the English and the metric systems would pale into insignificance.

SOLOMON HORWITT, M.D., New York.

# Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

## AUTOMOBILE ANTIFREEZING MIXTURES

*To the Editor:*—Please publish data regarding antifreeze mixtures for automobile radiators. Give a schedule showing just what percentage of denatured alcohol should be used to escape freezing at given temperatures.

E. J. PEUGELLY, M.D., Ironton, Minn.

ANSWER.—There are several substances used to lower the freezing point of the fluid in automobile radiators, among which are calcium chlorid, glycerin, and denatured alcohol or wood alcohol.

Calcium chlorid is effective in preventing freezing at ordinary winter temperatures, but its use is not rceommended, as it not only clogs the radiator spaces, but also actually attacks the metal, owing in part to electrolytic action. This substance is often sold under proprietary names. "Freeze-Proof" was analyzed by the A. M. A. Chemical Laboratory about three years ago and was found to be commercial calcium chlorid.

Many antifreezing solutions contain glycerin, which is slightly injurious to rubber connections. The glycerin is not used alone, but generally with an alcohol.

The following glycerin antifreezing mixture is for a temperature down to 5 F. below zero:

| | |
|---|---|
| Wood alcohol (by volume) | 15 per cent. |
| Glycerin | 15 per cent. |
| Water | 70 per cent. |

For a temperature down to 15 F. below zero:

| | |
|---|---|
| Wood alcohol (by volume) | 17 per cent. |
| Glycerin | 17 per cent. |
| Water | 66 per cent. |

Mixtures of denatured alcohol or wood alcohol and water lower the freezing point, and are probably the least injurious, though on warm days the alcohol will tend to boil and evaporate. A mixture of 1 part (by volume) of denatured alcohol and 3 parts of water is said to withstand a temperature of 0 F. A mixture of 3½ parts of denatured alcohol and 6½ parts of water freezes at about 15 F., below zero, and a mixture of 4 parts of denatured alcohol and 6 parts of water freezes at about 25 F. below zero.

Dyke's Automobile Encyclopedia gives, for 10 F. and above:

| | |
|---|---|
| Wood alcohol | 20 per cent. by volume |
| Water | 80 per cent. by volume |

For —7 F. and above:

| | |
|---|---|
| Wood alcohol | 30 per cent. by volume |
| Water | 70 per cent. by volume |

In case denatured alcohol is used, the percentage is increased additively by 15, that is, 35 and 45, respectively.

For practical purposes, it is probably better to use only alcohol and water, so that from the specific gravity readings of the radiator solution the amount of alcohol present may be readily determined and the evaporated alcohol thus may be correctly replaced. This cannot be accomplished when a third substance, as glycerin, is present.

## CLASSIFICATION OF EXPENDITURES FOR GRADUATE MEDICAL STUDY

*To the Editor:*—Kindly inform me whether there is a ruling of the Internal Revenue Department relative to the exception from income tax of expenditures for postgraduate study, etc. If possible, give the date and number of this ruling. The deputy collector here doubts the existence of such a ruling. Please omit my name.

V. S. Y.

ANSWER.—The ruling of the Internal Revenue Bureau is that such expenditures are an investment and not current expenses. They come under the same class as the original expenditure for medical education. Expenses incurred in attending meetings of medical societies are deducted so far as they include railroad fare and Pullman charges and the difference between the cost of living expenses at home and those incurred in attending the meetings.

# Medical Education, Registration and Hospital Service

## COMING EXAMINATIONS

ALABAMA: Mongtomery, Jan. 10. Chairman, Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 3-4. Sec.; Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

DELAWARE: Wilmington, Dec. 13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

HAWAII: Honolulu, Jan. 9. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

INDIANA: Indianapolis, Jan. 10. Sec., Dr. Wm. T. Gott, Crawfordsville.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 1-3. Sec., Dr. Roy B. Harrison, New Hibernia Bank Bldg. New Orleans.

MARYLAND: Baltimore, Dec. 13. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

MINNESOTA: Minneapolis, Jan. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

NEW MEXICO: Santa Fe, Jan. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

NORTH CAROLINA: Greensboro, Dec. 3. Sec., Dr. Kemp P. B. Bonner, Morehead City.

NORTH DAKOTA: Grand Forks, Jan. 3. Sec., G. M. Williamson, 860 Belmont Ave., Grand Forks.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

OKLAHOMA: Oklahoma City, Jan. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, Jan. 3. Sec., Dr. U. C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 3-9. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.

PORTO RICO: San Juan, Jan. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

RHODE ISLAND: Providence, Jan. 5-6. Sec., Dr. Byron U. Richards, State House, Providence.

UTAH: Salt Lake City, Jan. 3. Director, Mr. J. T. Hammond, Capitol Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 13-16. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

WASHINGTON: Olympia, Jan. 10. Director, Mr. Fred J. Dibble, Olympia.

WEST VIRGINIA: Charleston, Jan. 10. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: Madison, Jan. 10-12. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

## West Virginia July Examination

Dr. W. T. Henshaw, secretary, West Virginia Public Health Council, reports the oral, written and practical examination held at Charleston, July 12, 1921. The examination covered 11 subjects and included 132 questions. An average of 80 per cent. was required to pass. Of the 28 candidates examined, 24 passed and 4 failed. Eighteen candidates were licensed by reciprocity. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| **PASSED** | | |
| George Washington University | (1920) | 88.9 |
| Chicago College of Medicine and Surgery | (1917) | 80 |
| University of Louisville Medical Department | (1921) | 80.9, 82.4 |
| Johns Hopkins University | (1920) | 90.6 |
| University of Maryland | (1920) | 88.9 |
| University of Cincinnati | (1920) 89.6, (1921) | 80.7, 81.2, 81.4 |
| Western Reserve University | (1919) | 89 |
| Jefferson Med. College | (1920) 87, 88.2, 90.2, (1921) | 82.9, 90, 90.2 |
| Temple University | (1921) | 86.9 |
| University of Pennsylvania | (1920) | 91.1 |
| University of Tennessee | (1919) | 88.4 |
| Vanderbilt University | (1915) | 86.5 |
| Medical College of Virginia | (1921) | 87.9 |
| University of Vienna | (1899)* | 85 |
| University of Naples | (1918)* | 80 |
| **FAILED** | | |
| National University, Athens | (1921)* | 70 |
| University of Rome | (1916)* | 70 |
| Undergraduate | | 27 |
| Osteopath | | 28 |

| College | Year Grad. | Reciprocity with |
|---|---|---|
| **LICENSED BY RECIPROCITY** | | |
| Atlanta Medical College | (1915) | Georgia |
| College of Physicians and Surgeons, Chicago | (1907) | Indiana |
| University of Louisville | (1910), (1917) | Kentucky |
| Bowdoin Medical School | (1891) | Maine |
| College of Physicians and Surgeons, Baltimore | (1895) (1915) | N. Carolina Virginia |
| Maryland Medical College | (1905)* | Mississippi |
| Missouri Medical College | (1889) | Texas |
| St. Louis University | (1918) | Missouri |
| Columbia University | (1891) | Virginia |
| Eclectic Medical College, Cincinnati | (1919) | Ohio |
| Ohio State University College of Medicine | (1917) | Ohio |
| University of Cincinnati | (1920) | Ohio |
| Vanderbilt University | (1904) | Missouri |
| University of Vermont | (1908) | Vermont |
| Medical College of Virginia | (1918) | Virginia |
| Osteopath | | Missouri |

* Graduation not verified.

## Washington July Examination

Mr. William Melville, secretary, Department of Licenses, reports the oral and written examination held at Olympia, July 12, 1921. The examination covered 14 subjects and included 140 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 16 passed and 4 failed. Forty candidates were licensed by reciprocity. The following colleges were represented:

| College | Year Grad. | Number Licensed |
|---|---|---|
| **PASSED** | | |
| College of Physicians and Surgeons, San Francisco | (1920) | 1 |
| Denver and Gross College of Medicine | (1903) | 1 |
| Northwestern University | (1921) | 3 |
| Rush Medical College | (1920) | 1 |
| Johns Hopkins University | (1918) | 1 |
| St. Louis University School of Medicine | (1920) | 1 |
| John A. Creighton Medical College | (1920) | 1 |
| University of Oregon | (1916), (1920, 2) | 3 |
| Jefferson Medical College | (1920) | 1 |
| McGill University | (1900) | 1 |
| University of Vienna | (1905)* | 1 |
| Kanazawa Special Medical School | (1916)* | 1 |
| **FAILED** | | |
| Loyola University | (1918) | 1 |
| Rush Medical College | (1897) | 1 |
| University of Kansas School of Medicine | (1920) | 1 |
| Kumamota Special Medical School | (1919)* | 1 |

| College | Year Grad. | Reciprocity with |
|---|---|---|
| **LICENSED BY RECIPROCITY** | | |
| Denver and Gross College of Medicine | (1910) | Montana |
| Georgetown University | (1906) | N. Dakota |
| Bennett Medical College | (1915) | Illinois |
| Chicago College of Medicine and Surgery | (1909) (1917) | Illinois Alaska |
| Chicago Homeopathic Medical College | (1903) | Ohio |
| College of Physicians and Surgeons, Chicago | (1903), (1907) (1910) | Illinois Montana |
| Loyola University | (1917) Montana, (1917, 2) | Illinois |
| Northwestern University | (1913) | Illinois |
| Rush Medical College | (1908) North Dakota, (1913) (1920) Illinois, Ohio, (1921) Illinois | Illinois |
| Medical College of Indiana | (1905) | Indiana |
| State University of Iowa College of Medicine | (1897) | Montana |
| University of Maryland | (1915), (1918) | Idaho |
| Harvard University | (1919) | Illinois |
| Detroit College of Medicine and Surgery | (1919) | Michigan |
| Minneapolis College of Physicians and Surgeons | (1900) | Montana |
| University of Minnesota | (1921) | Minnesota |
| Kansas City Medical College | (1903) | Utah |
| Washington University | (1901) Indiana, (1912) | Missouri |
| John A. Creighton Medical College | (1896) (1913), (1917) Montana | Illinois |
| Western Reserve University | (1919) | Ohio |
| Jefferson Medical College | (1920) | Ohio |
| University of Pennsylvania | (1897), (1912) (1890), (1908), (1919) Idaho | Penna. |
| University of Toronto | (1911) | Iowa |

* Graduation not verified.

## Michigan June Examination

Dr. Beverly D. Harison, secretary, Michigan State Board of Registration in Medicine, reports the written examination, held at Detroit, June 20-22, 1921. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. One hundred and fifty-three candidates were examined, all of whom passed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| **PASSED** | | |
| Chicago College of Medicine and Surgery | (1916) | 79.5 |
| Loyola University | (1916) 79.9, 84, (1919) | 83 |
| Northwestern University | (1921)* 79.3 | 83.3, 84.3 |
| Rush Medical College | (1921) | 82.4 |
| Indiana University | (1920) | 84.3 |
| State University of Iowa College of Medicine | (1920) | 82.2 |
| Detroit College of Medicine and Surgery | (1921) | 79.1 |
| | 80.6, 80.8, 81.1, 81.2, 81.3, 81.5, 81.5, 82, 82.2, 82.4, 82.5, 82.7, 82.7, 82.8, 82.8, 82.9, 83.1, 83.2, 83.3, 83.3, 83.4, 83.5, 83.7, 83.8, 83.9, 84.1, 84.4, 84.5, 84.5, 84.5, 84.5, 84.7, 85, 85, 85.3, 85.5, 85.5, 85.5, 85.8, 85.8, 85.9, 86.2, 86.4, 86.6, 87, 87.1, 87.6, 87.6, 88, 89.4 | |
| University of Michigan Homeopathic Medical School | (1915) (1921) 81.7†, 83.8, 86.1, 86.9 | 83.8, |
| University of Michigan Medical School | (1919) | 80.8, |
| | (1921) 79.8, 80.5, 80.5, 80.6, 80.8, 81.3, 81.6, 81.6, 81.7, 81.8, 82.2, 82.3, 82.4, 82.6, 82.6, 82.7, 82.7, 82.8, 82.8, 82.8, 82.8, 82.9, 83, 83, 83, 83, 83.1, 83.3, 83.3, 83.3, 83.3, 83.4, 83.4, 83.4, 83.4, 83.5, 83.5, 83.5, 83.6, 83.7, 83.8, 84, 84, 84.1, 84.2, 84.3, 84.5, 84.5, 84.5, 84.5, 84.6, 84.7, 84.7, 84.9, 85, 85, 85, 85.1, 85.1, 85.1, 85.2, 85.3, 85.3, 85.3, 85.4, 85.4, 85.6, 86, 86.2, 86.5, 86.6, 87.1 | |
| Baylor University | (1920) | 83.4 |
| McGill University | (1914) 82.7, (1918) 81.4, (1921) | 82 |
| Queens University | (1905) | 78.9 |
| University of Toronto | (1915) 83. 8, 84.9, (1920) 85.6, (1921) | 82 |
| Western University | (1917) 80.3, (1920) | 82.9, 84.1 |
| University of Palermo | (1912)† | 79.3 |

* These candidates have finished the medical course and will obtain the M.D. degree after they have completed a year's internship in a hospital.

† Graduation not verified.

# Book Notices

A MANUAL OF MIDWIFERY FOR STUDENTS AND PRACTITIONERS. By Henry Jellett, B.A., M.D., F.R.C.P.I., and David G. Madill, B.A., M.B., B.Ch., Gynaecologist to Monkstown Hospital, Dublin. With the assistance, in special subjects, of W. R. Dawson, M.D., F.R.C.P.I., H. C. Drury, M.D., F.R.C.P.I., T. G. Moorhead, M.D., F.R.C.P.I., and R. J. Rowlette, M.D., F.R.C.P.I. Third edition. Cloth. Price, $10. Pp. 1199, with 590 illustrations. New York: William Wood & Co., 1921.

This edition, which appears eleven years after the second edition, is comparable to our American textbooks of obstetrics, and covers the ground with about the same general plan. It consists of ten chapters or parts, in logical sequence, the last one being devoted to consideration of the infant. The book is well made up, printed on good quality paper, in easy type, and is amply illustrated with refined reproductions and semidiagrammatic cuts, some of which are in colors. The text for the most part is accurate and authoritative, is brought well up to date, and is free from errors. Some subjects, such as the toxemias of pregnancy, are handled exceptionally well, and the treatment is described as carried out in the Rotunda Hospital. In a few instances the authors' advice might be held in dispute, as, for instance, on pp. 361-362 concerning the use of pituitary extract. The authors claim that the contractions produced by the drug retain their physiologic characteristics—are rhythmic and intermittent—not tonic, as is the case with ergot; that this is the fundamental principle governing its use in labor, "as it enables us to administer it during *any stage* of labor." Insufficient warning is given against the injudicious use or, rather, misuse of the drug. The dose of 1 c.c. in the second stage of labor when there is insufficiency of the powers, which is advised by the authors, is considered a huge overdose by most American authors. Before the birth of the child rarely would a dosage of more than 0.18 c.c. (3 minims) be justified, and many authorities consider the drug a safe one to use only after the child is born. Danger of rupture of the uterus is the warning signal that should be sounded under this caption. Again, in the part dealing with the management of face presentation, in discussing the treatment of the mentoposterior position, Jellett says: "If . . . the chin is directed posteriorly, our attitude should be one of watchful expectancy." In just this position expectancy should be replaced by active intervention. Reed's series of 22.6 per cent. out of seventy-five cases of chin-posterior presentation delivered as persistent posterior presentation is mentioned, as is resort to pubiotomy or craniotomy, whereas internal version (podalic), though casually mentioned earlier in the chapter, is not emphasized as the method of choice for delivery after attempts at reposition. Taken as a whole, the book has a definite place in the obstetric library as representative of the Dublin school, and can safely be recommended as a reliable reference work for students and practitioners of obstetrics.

DISEASES OF THE SKIN. A Text-Book for Students and Practitioners. By J. M. H. Macleod, M.A., M.D., F.R.C.P., Physician for Diseases of the Skin, Charing Cross Hospital. Cloth. Price, $16 net. Pp. 1307, with 458 illustrations. New York: Paul B. Hoeber, 1921.

This new work, constituting as it does the first large textbook on dermatology to come from the English in some years, and a first edition by a well known dermatologist, is assured careful and critical consideration. The book is divided into the conventional two parts, the first dealing with general considerations, the second with the individual dermatoses. The author's reputation as a histopathologist is well known and, as was to be expected, the sections on anatomy and pathology are excellent. The other sections in this part are adequate and follow the usual lines. The consideration of the various dermatoses furnishes a comprehensive and up-to-date exposition of the subject, and the author seems to have found space in some instances for more extensive detail than is found in most textbooks. As examples of this may be mentioned the amount of space given to the consideration of the various theories of the etiology of psoriasis; the detailed information as to the transmission of leprosy, its history and the experimental work of the past, and the valuable discussion of many occupational disorders. Beyond this, one finds that numerous topics usually not covered or merely mentioned in many dermatologic textbooks are given full consideration, as in the section on burns from heat, lightning and electricity. The discussion of treatment is of great interest, both in the general chapter on that subject, and under the individual diseases. Here again detailed information is helpful, as in the discussion of the Adamson-Kienböck technic of roentgen-ray treatment for ringworm of the scalp. In addition, the American reader finds mention of many drugs and methods of treatment apparently in common use among the English which are known but little, or not at all, by the majority of us, and one cannot help but feel that in some cases at least these selections are not made judiciously. The section on syphilis is adequate, but comparatively seems to have less space devoted to it than other topics. This criticism can be made elsewhere, also, as the subject of leukemias of the skin, one of constantly increasing importance, receives only half a page for its discussion. The bibliography is limited, and one finds that the references are in large part to British writers, and one notes certain omissions, perhaps as a result of this. Under pruritus ani no mention is made of mycotic or bacterial infection as etiologic factors; while under roentgen-ray therapy only dosage regulated by pastils is given, no mention being made of the method introduced by MacKee and Remer. Other instances might be cited. The illustrations include 435 black and white figures in plates and in the text, and twenty-three illustrations in color in fourteen plates. The black and white figures are for the most part good, those in the section on syphilis particularly so, but a few are poor. The colored plates, as is usually the case, often have an artificial and exaggerated appearance which lessens their value. The various disorders of the skin are classified for the most part according to etiology or in topographic groups, an arrangement which does not follow the traditional lines, but which seems satisfactory. The book can be recommended to the physician as a complete exposition of modern dermatology, especially as it is influenced by the best in the British school.

PRÉCIS DE PARASITOLOGIE HUMAINE. Par M. Neveu-Lemaire, Professeur agrégé des facultés de médecine. Fifth edition. Cloth. Price, 22 francs. Pp. 466, with 313 illustrations. Paris: J. Lamarre, 1921.

The appearance of the fifteenth edition of this admirable treatise is an indication that it meets a real need. The author has compressed into brief compass an immense amount of valuable material and presents it in a clear and attractive form. Separate chapters deal with the different types of human parasites, both plant and animal. The major emphasis is laid on animal parasites, to which three fourths of the book is devoted. In each "species," one finds a brief description, a discussion of the distribution, development and relation to disease, as well as treatment and prophylaxis. Naturally, within a work of this compass, all of the items are treated briefly; but the selection of material is good, and the text, in general, thoroughly up to date. A single unfortunate exception may be noted in the case of *Giardia intestinalis*, in which the extensive and valuable recent work of Kofoid and his associates has been overlooked. Synoptic keys of the principal trematode parasites of man will serve to aid in the preliminary orientation of the physician dealing with unknown material, although it must be confessed that where such things are most needed, they are most likely to be pitfalls, and entrap the worker unfamiliar with this field.

PHYSICAL DIAGNOSIS. By W. D. Rose, M.D., Associate Professor of Medicine in the University of Arkansas. Second edition. Cloth. Price, $8.50. Pp. 736, with 309 illustrations. St. Louis: C. V. Mosby Company, 1921.

This volume is a thoroughly revised and considerably enlarged second edition of a textbook covering the subject of physical diagnosis from the student's point of view. The contents include the clinical anatomy of the thorax; methods of physical diagnosis of the chest, circulatory system and abdomen; the clinical pathology, physical signs, diagnosis and differential diagnosis of a selected list of diseases; and certain other subjects, such as a chapter on roentgenographic examination and an appendix giving a detailed outline of a case history and physical examination chart. Although many of the illustrations are original, the author has found it

necessary to include many from other standard textbooks in order to fill the gaps. All of the topics enumerated cannot be covered adequately in a volume of this size; it is to be regretted that the author has attempted to do so. Such time honored subjects as inspection, palpation and auscultation are adequately treated from the point of view of the student; an attempt is made to explain physical phenomena on a rational basis. It would have been better had the author confined himself to these subjects. The discussion of blood pressure and of the arrhythmias and the chapter devoted to the examination of the nervous system are inadequate. The chapters dealing with the general principles of physical diagnosis are well written, and the selection of subject matter for the student is excellent. Those dealing with special diseases are commendable for the same reasons. It is in these chapters that the real worth of the book lies, and it is because of them that the book may be placed to advantage in the hands of the student.

DIE BEDEUTUNG DER VERSCHIEDENARTIGEN STRAHLEN FÜR DIE DIAGNOSE UND BEHANDLUNG DER TUBERKULOSE. Mit dem Robert Koch-Preis für Tuberkulosesforschung gekrönte Monographie. Von Dr. Ruben Gassul. Paper. Price, 30 marks. Pp. 72. Leipzig: Georg Thieme, 1921.

This monograph was awarded the Robert Koch prize on the advancement of knowledge of various features of tuberculosis. It is a presentation of considerable value, as it is largely a compilation of the works and experiences of the leading German workers in this branch of special medicine. The book is divided into two sections, the first of which is on roentgen-ray diagnosis, the second being on therapeutic considerations of the fight being waged against tuberculosis. In his introduction, Gassul states that, as a result of the war, German physicians everywhere observed that the number of cases of tuberculosis and deaths from this disease increased in alarming numbers. Attempts were made, whenever possible, to advance the war on tuberculosis, but the results were far from satisfactory. In 380 villages of more than 15,000 inhabitants, the incidence of deaths from tuberculosis was 15.7 per cent. in 1913, and had increased to 31.7 per cent. in 1918. In Berlin alone there were 5,738 deaths in 1918, and the mortality is about 500 a month. In other places the death rate has tripled and the disease greatly increased, owing in part to the many cases of latent tuberculosis which became active under the rigors of war duties, and in part to the effects of the blockade. Furthermore, the disease has become more virulent than before the war. Glandular as well as osseous tuberculosis has also greatly increased in frequency. Not only are more children involved, but also the number of the aged is increased. During the last few months all these figures have shown a decided betterment; but they are still too high, and the social and financial questions are more in the foreground than formerly.

Gassul presents the question, What course is the best to pursue in establishing the diagnosis, particularly the early diagnosis of tuberculosis, and what is the best treatment? Surgery has little to offer in the great majority of cases. Specific therapy has not proved its claims. Will roentgen-ray therapy help? Can it alone or in conjunction with other healing methods really help the tuberculosis? As to diagnosis, the roentgen ray has of late found its place as the deciding factor in the doubtful case. The heretofore well established forte of the roentgen ray in the diagnosis of various forms of surgical tuberculosis is now generally recognized. Gassul contrasts the roentgen-ray evidence with that obtained by other clinical methods in the determination of pulmonary tuberculosis, and he describes more or less minutely the so-called Nicol system of shadow interpretation. A classification of types of pulmonary-tuberculosis is given which is based on the roentgen-ray shadow features rather than on other aspects of the disease. The roentgen-ray findings in children, the adult and the aged are given, this being a summary of the present day accepted indications of tuberculosis of German roentgenologists. Short chapters are given on the roentgen-ray signs of tuberculosis of the abdominal organs, mainly the kidneys, and on surgical tuberculosis in bone affections.

The matter of ray and light therapy in this disease is covered in the second portion of the book. Gassul describes the work of many observers, much of which must still be regarded as in the experimental stage. Sun baths and outdoor treatments, and the therapeutic results of the mercury-quartz lamps are given considerable space. Roentgen rays as a therapeutic agent in the war on tuberculosis have from time to time been advocated as of value, and Gassul cites many articles in which this method is praised. In this chapter there are found the only references of the work of American authors. Numerous cases of improvement in this disease which followed treatment by roentgen rays are detailed. Radium and mesothorium also receive notice. Gassul indicates that the optimal therapeutic results are obtained by a combination of several of the different rays properly selected in each case. The book gives much food for thought.

DIATHERMY: ITS PRODUCTION AND USES IN MEDICINE AND SURGERY. By Elkin P. Cumberbatch, M.A., B.M., M.R.C.P., Medical Officer in Charge, Electrical Department, St. Bartholomew's Hospital, etc. Cloth. Price, $6. Pp. 193, with 44 illustrations. St. Louis: C. V. Mosby Company, 1921.

This is a reliable guide for the employment of a useful addition to our armamentarium. The introduction to the subject of the medical usage of high frequency currents is understandable by any one familiar with the fundamental principles of electricity. It has to be appreciated that the medical effect of diathermy is properly defined as the product of heat and not as an electrical phenomenon. In the chapter on surgical diathermy, illustrations from experiments conducted by the author help to an understanding of the technic used for the application of high frequency currents for the destruction of tumors. The various electrodes to be used in the different parts of the human anatomy are enumerated, and their use is explained by the help of numerous illustrations. A valuable feature of this publication is furnished by the mentioning of untoward incidents due to the faulty use of the high frequency current, and hints are given how to avoid them. The text, though concise, is clear, and the practical points are well brought out.

MOTHERHOOD. A Practical Guide for the Newly Married, Including Determination of Sex, Intercourse During Pregnancy, and Prenatal Influence. By H. W. Long, M.D., Neurologist. Cloth. Price, $3 net. Pp. 195. Boston: Richard G. Badger, 1921.

Among other things, Dr. Long lays particular stress upon the effect of antenatal influence upon the child. He holds that these influences exist and suggests that the mother during her period of pregnancy seek influences that engender "good thoughts": such things as music, good books and fine pictures. He advises her also to keep a diary at this time and, when it is completed, to turn it over to the Euthenic Society as data on the subject. This chapter on maternal impression, because of its possible depressing effect on the mother, might better have been omitted.

THE CLINICAL EXAMINATION OF THE NERVOUS SYSTEM. By G. H. Monrad-Krohn, M.D., M.R.C.P., M.R.C.S., Lecturer in Neurology at the Royal Frederick University, Christiania. Foreword by T. Grainger Stewart, M.D., F.R.C.P., Physician to Out-Patients, National Hospital for the Paralyzed and Epileptic, Queen Square, London. Cloth. Price, 6 shillings net. Pp. 135, with 12 illustrations. London: H. K. Lewis & Co., Ltd., 1921.

In this book the author describes a routine method of examination which he has adopted in his neurologic clinic. The outline is sufficiently brief to be practical and sufficiently detailed to save the search of numerous volumes for methods. It is based on a large clinical experience and will be especially useful to the general practitioner who is confronted with a neurologic or psychiatric problem.

DISEASES OF THE SKIN. By Richard L. Sutton, M.D., Professor of Diseases of the Skin, University of Kansas School of Medicine. Fourth edition. Cloth. Price, $9.50. Pp. 1132, with 980 illustrations. St. Louis: C. V. Mosby Company, 1921.

This edition of Sutton's book contains numerous additions, especially on the subject of epidermophyton infection. Advantage has been taken of all of the new literature on dermatology, and numerous interesting new illustrations have been added. The popularity of this book may be judged by the rapid appearance of the various editions, a total of four within a few years.

# Miscellany

## A DEFENSE OF HIGH HEELS

The condemnation of the fashion of high-heeled boots, so much in favor among women, has become a medical commonplace. At last a surgeon has raised a voice in favor of high heels. In a lecture delivered at the Institute of Hygiene, in London, Mr. W. H. Trethowan, orthopedic surgeon, said that of heels the "Cuban" was the most satisfactory for general use, the "Louis" being bad on account of its curved mechanical shape and inefficient support, and also because it weakened the whole sole of the shoe. Children with normal feet did not require much heel. Women, however, favored high heels, and while no doubt some did so purely for mechanical reasons, it was certain that the majority wore them as a response to the relief afforded to the ligaments of the foot. Women, being hampered by skirts, could not get such freedom of movement in the hips as men, and it might be from this cause that they needed the more efficient support afforded by heels. The action of the foot in men was not nearly so marked as in women, as men propelled themselves with the hip movement of long strides, while women walked more with their feet. It was a universal and traditional idea that the majority of troubles in the feet are due to the use of heels; but the anatomy and movements of the foot showed fully that the strain on the long arch must lessen in proportion as the heel is raised. This was the experience of the vast majority of women, in spite of medical advice to the contrary. The most important measure in giving relief in cases of weak or overstrained feet was to raise the height of the heels, and not to lower it, as was nearly always advised. The height of the heel for remedial purposes should not exceed 2½ inches, and in house shoes should not be less than 1¼ inches. Naturally, the height should not do more than afford relief. In cases of overstrained feet, slippers must be avoided. Heels not less than 1¼ or 1½ inches in height were suitable for general use in healthy feet. Most ready-made boots failed to support the inner border of the foot, and this, with thin and unyielding waists which bulge downward after a few weeks' wear, was largely responsible for the inefficient support and breakdown of the foot. When such an evil was combined with flat heel, the shoe was of the worst description. The majority of people wore shoes too narrow across the toes. Up to a point behind the balls of the toes the snugger and narrower the shoe the better, for a good, tight grip of the instep was desirable.

## INDUSTRIAL DERMATOSES AMONG PRINTERS

A dermatosis, called "ink poisoning," which affects those parts of the arms and hands subject to constant contact with colored inks, is known to have prevailed for many years among printers in the large printing and engraving plants of this country. The attention of dermatologists has been attracted by discussions in foreign medical periodicals of cases of a similar dermatosis. The weight of blame for this dermatosis is attributed by foreign writers to the many substitutes for and adulterants of the pure oil of turpentine. Inquiries made of the larger printing and engraving firms of this country disclose the fact that although neither oil of turpentine nor a substitute is used, still the arms and hands of the pressmen develop lesions similar to those described by these writers. The skin lesions vary from slight erythema to ulcerations, and are located on all regions of the forearms and hands, occasionally extending above the elbow. Some of the lesions present a dry and scaly appearance, while others are moist and vesicular. Some have a tendency to coalesce and spread, others are discrete. A history of erythema followed by vesicular eruption, with itching or burning or both, is given by most sufferers, only a few giving a negative history in this respect. A study to determine the possible relationship of the dermatosis to the use of inks was recently undertaken by the United States Public Health Service and is reported on by W. J. McConnell (*Public Health Reports* **36**: 279 [May 6] 1921). The investigation disclosed one significant prominent fact: all person suffering with dermatosis were found to have dry skin—that is, skin either partially or wholly devoid of natural oiliness; whereas those persons without eruptions had oily skin. This dryness of the skin is the only differentiating factor found to exist with any degree of constancy among the men so affected. The fact that the inks retard healing after abrasion of the skin indicates the presence in them of ingredients, perhaps of chromates, which aggravate an otherwise simple dermatosis. There is, then, reason to believe that the driers in the inks have a tendency to extract the natural oiliness of the skin. The injurious effects of benzol are well known, and it is possible that some cases of the dermatosis had their origin from its use. When it is necessary to use it for cleaning purposes the hands should be protected by gloves.

Experiments in using the inks on the unbroken skin failed to cause a dermatosis or even an irritation. The inks delayed healing to a varying degree when applied after abrasion of the skin; the brown and green delayed healing longest, and the black for the shortest time. All inks, irrespective of color, when removed by the methods in vogue at the plant at the time of this study caused an irritation—and in one case a dermatitis—among those with dry skin. The degree of dermatosis apparently depends on the dryness of the skin, the amount of linseed oil in the ink, and the method of removing the ink. It is believed that the reason why some men develop the condition in a short time and others after a long period of time lies in the degree of natural oiliness in the skin of the individual. Again, with those who use the black ink, which has the largest proportion of oil of all the inks, the trouble is further delayed. It may be that the drier in the inks has a tendency to extract the oil from the skin of some individuals. Those who do not wear gloves when cleaning the plates with benzol may more readily acquire a dryness of the skin. The dry skin might be compared with a blotter, which very readily absorbs the oil in the inks and the pigments which are carried with the oil. These pigments, in turn, are obviously removed from a dry skin with more difficulty than they are from a skin which is already oily and which absorbs little or no additional oil from the inks. More scrubbing is required in the case of the dry skin, and a dermatitis soon begins. The inks retard healing, and from repeating the process daily, a severe case of eczema may develop.

The following prophylactic measures are recommended, and if used constantly and under supervision, will prevent the dermatosis. A supply of lanolin or a mixture of lanolin and olive oil in equal parts should be placed in suitable receptacles in the wash room where the printers and those who handle the inks change their street clothes for work clothes. Before entering the press rooms, each worker should be required to rub lanolin well into the pores of the hands and arms. If the skin feels too greasy after this application, the excess may be wiped off with a clean cloth. At the luncheon period these workers should be supplied with a mixture of sawdust and liquid soap (the sawdust should be moistened with the soap), which, together with warm water, will readily remove the ink without injury to the skin. It is optional with the men to precede the sawdust and soap with the oil supplied by the plant. Before entering the press rooms, the first process described above should be repeated; and at the end of the shift, the second, or cleansing, process should be repeated. The skin lesions respond readily to the treatment with calamin paint. Zinc ore (calamin and a silicate of zinc), pulverized and passed through a 100-mesh sieve, 3 parts; gelatin, 4 parts; glycerin, 5 parts; water, 6½ parts. They were also given a copy of the following directions for using the calamin paint: Melt and paint over the part affected with a single thin layer of paint, and before it has set tap lightly all over with a piece of absorbent wool, so as to form a kind of feltwork with the paint. Allow it to set completely before putting any clothes over it. Leave it on until it begins to come loose; then peel off and apply more in the same manner.

# Medicolegal

### Roentgen-Ray Photographs as Evidence

*(City of Covington v. Bowen (Ky.), 230 S. W. R. 532)*

The Court of Appeals of Kentucky, which affirms a judgment for $2,000 damages in favor of plaintiff Bowen for personal injuries received by him in a fall on a defective pavement, says that the defendant city prosecuted its appeal chiefly, if not solely, on the ground that certain roentgen-ray pictures purporting to show the fractures of the bones in the plaintiff's foot and leg were allowed to be introduced in evidence without sufficient qualification of the witnesses by whom they were introduced, and without sufficient verification of the photographs. As the photographed bones were covered with flesh, it was impossible to see them with the natural eye, and therefore to say with absolute certainty that the pictures presented were exact photographs of the conditions of the fractures. But when a roentgen-ray machine is shown to make correct photographs under similar conditions to those in which the pictures in question were made, and that it was operated by an experienced and trained person in that line of work, who performed the work in such a way as to obtain a fair and correct view of the object photographed, and the photographs are correct copies of the plates made by the machine, there is no reason why they, like other photographs, should not be allowed to go to the jury as evidence in cases in which such evidence is relevant. In this case the evidence showed that the photographs in question were made by a skilled and practiced operator of such machines, and the machine was properly focused and was so located to the injured limb and foot of the plaintiff as to give a clear and correct view and impression of the fracture, and that the plates were faithfully reproduced by the photographs. The court holds them to have been properly verified. A photograph is but another way of giving a description of the thing under consideration, and, although pictures sometimes produce the wrong impression, the same may be said of the words of a witness who undertakes to give a verbal picture of the same thing. A picture is not to be rejected as evidence because it does not conform to the other testimony, if it was taken by a person who was experienced and trained in such work and who testifies that it is a true and correct representation of the conditions as they appeared to the witness at the time the picture was taken. The rule with respect to the introduction of roentgen-ray photographs is the same as that governing the introduction of ordinary pictures, except that one offering a roentgen-ray photograph is not obliged to show with the same clearness, as in other cases, that the picture correctly and truly represents the object attempted to be photographed as seen by the witness.

### Death from Erysipelas of Insured Physician

*(Bell v. State Life Ins. Co. (Ga.), 105 S. E. R. 846)*

The Supreme Court of Georgia reverses a judgment of the court of appeals which affirmed one on a verdict directed in favor of the defendant on a policy of insurance on the life of a physician. The action was brought by an administrator for the recovery of a disputed double indemnity that was to be paid where it should be shown that the death of the insured resulted from "bodily injury sustained and effected directly through external, violent and accidental means, exclusively and independently of all other causes." The petition stated that on the third day of a given month the physician began to attend professionally a child suffering from erysipelas, and that, while he was attending the child, the physician, in adjusting the glasses that he wore, accidentally caused a scratch or abrasion of the skin on or near his right ear, which scratch or abrasion became infected with the germs of erysipelas that developed on or about the 20th of the month, as a result of which the physician died on the 17th of the following month.

The court of appeals held that, construing the petition in accordance with the natural meaning of the language used, its allegations would seem necessarily to mean that the wound or scratch occurred while the physician was attending his patient, and that by reason of such exposure to the patient it then and there became infected. Giving the petition what seemed to be the only reasonable and proper construction, the evidence adduced on the trial entirely failed to sustain the case laid, since from the plaintiff's own evidence it was shown that the abrasion on the ear occurred at his office in Atlanta, whereas the patient with erysipelas was a resident of a neighboring city. If the infection occurred as a consequence of a voluntary act of the physician in thereafter subjecting the wound or abrasion to such a serious and dangerous exposure, the defendant would not be liable. The plaintiff, however, contended that the language "while attending an erysipelas patient" authorized a construction, in applying the evidence thereto, that the abrasion of the skin mentioned in the petition occurred at some time between the first visit of the physician to his patient and his last visit, and not necessarily immediately in the presence of the patient; and the supreme court disagrees with the conclusion reached by the court of appeals.

The supreme court thinks that, in applying the evidence, the petition authorized the construction that the abrasion on the ear took place at some time during the engagement of the physician as attending physician to the erysipelas patient. It does not think that the allegations necessarily meant that the abrasion occurred while the physician was actually in the presence of the patient. It was a question to be determined by the jury whether the evidence was sufficient to support the petition. It was said that if the infection occurred as a consequence of the voluntary act of the physician in thereafter subjecting the wound or abrasion to such a serious and dangerous exposure as a visit to a patient suffering from erysipelas, the defendant insurance company would not be liable. The supreme court thinks that this also would be a question to be determined by the jury.

### Rulings on Questions as to Physician Advertising

*(Zeigler v. Oil Country Specialties Mfg. Co. (Kan.), 196 Pac. R. 603)*

The Supreme Court of Kansas holds that where a physician testifies on cross-examination that he advertises, it is not error to refuse to allow him to be further cross-examined as to the effect advertising has on his admission into medical associations. The court says that in this action to recover damages for personal injuries a physician who was called as a witness for the plaintiff testified in substance, on cross-examination, that he advertised in the papers. He was then asked if the fact that he advertised did not prohibit him from joining the county medical association. An objection to that question was sustained, and it was not error to exclude that evidence on cross-examination. Whatever there was in the fact of the physician advertising that reflected on his credibility as a witness was contained in his answer, in which he practically admitted that he advertised, and the fact that he was denied admission to the county medical association by reason thereof did not further affect that credibility. Nor was it proper to try to show by a physician who was a witness for the defendant that the county medical association had prescribed a code of ethics for physicians to follow in that county, and to try to show that a physician who advertised could not belong to that association for the reason that he was unethical. That evidence was also rightly excluded. It was an attempt to impeach the physician first mentioned, not by cross-examination, but by direct evidence, other than by showing his general reputation for truth and veracity. That cannot be done. A witness cannot be directly impeached except by proving that his general reputation for truth and veracity is bad.

# Society Proceedings

## COMING MEETINGS

**American Association of Anatomists, New Haven, Conn., Dec. 28-30.**
American Physiological Society, New Haven, Conn., Dec. 28-30.
Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
Porto Rico, Medical Association of, San Juan, Dec. 10-11.
Radiological Society of North America, Chicago, Dec. 7-9.
Society of American Bacteriologists, Philadelphia, Dec. 27-29.
Southern Surgical Association, Pinehurst, N. C., Dec. 13-15.
Western Surgical Association, St. Louis, Dec. 9-10.

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Diseases of Children, Chicago

November, 1921, **22**, No. 5


*Infantile Tetany. B. Kramer, F. F. Tisdall and J. Howland, Baltimore.—p. 431.
Experimental Albuminuria in Rabbit. H. Saito and K. Gondo, Nagasaki, Japan.—p. 438.
*Vital Capacity of Lungs and Its Relation to Exercise Tolerance in Children with Heart Disease. M. G. Wilson and D. J. Edwards, New York.—p. 443.
*Studies of Infant Feeding. XIV. Chemical Studies of Certain Dry Milk Products Used in Infant Feeding. A. W. Bosworth, Boston.—p. 455.
Clinical and Radiographic Study of Thymus in Infants. K. D. Blackfan and K. Little, Cincinnati.—p. 459.
*Size of Infantile Palate. B. S. Denzer, New York.—p. 471.
*Congenital Goiter. Report of Four Cases. W. B. Porter and R. A. Vonderlehr, Richmond, Va.—p. 477.
*Etiology and Treatment of Ammonia Dermatitis of Gluteal Region of Infants. J. V. Cooke, St. Louis.—p. 481.
*Abdominal Pain of Throat Infections. J. Brennemann, Chicago.—p. 493.
Some Records Regarding Absences and Their Causes in Lincoln School of Teachers College. H. H. Mason, New York.—p. 500.
*Rare Cardiac Anomaly. B. Ratner, New York, and M. E. Abbott and W. W. Beattie, Montreal, Can.—p. 508.
*Case of Tuberculous Meningitis with Dry Spinal Subarachnoid Space Due to Diffuse Tubercle Infiltration of Spinal Meninges. J. C. Regan and G. W. H. Cheney, Brooklyn.—p. 516.
Intermitting Fever in Child Due to Mastoiditis. J. S. Leopold, New York.—p. 521.


**Infantile Tetany.** — Kramer and his associates report observations in confirmation of the previous work of Howland and Marriott on the concentration of inorganic phosphorus in the serum of individuals the subjects of active tetany, the relationship between the sum of the univalent cations, sodium and potassium, and the divalent cations calcium and magnesium. In infantile tetany, the inorganic phosphorus of the serum shows a marked variation. In about half the cases the concentration is normal or slightly above normal. An increase in the inorganic phosphorus of the serum does not seem to be responsible for infantile tetany. The ratio $\frac{\text{Na and K}}{\text{Ca and Mg}}$ is increased. This is almost wholly due to a decrease in the concentration of calcium. The concentration of sodium and magnesium is essentially normal; that of potassium is slightly increased. The increased irritability of the neuromuscular mechanism, which is the essential phenomenon in infantile tetany, is due to the diminution of the concentration of calcium in the serum.

**Vital Capacity of Lungs, Exercise Tolerance and Heart Disease.**—The vital capacity of eighty-five normal children studied by Wilson and Edwards comprising forty-four boys and forty-one girls and ranging in age from 6 to 16 years, gave an average of 1,870 c.c. per sq. m. surface area; with the boys showing only a 3.5 per cent. larger value than the girls. A group of thirty-six children showing extensive hilus changes and increased pulmonary markings radiating to the lung periphery revealed a reduction in vital capacity of 20 per cent. below the average for normal subjects. In children with heart disease, eighty-eight with normal exercise tolerance showed an average vital capacity of only 2 per cent. below the average for the normals; thirty-eight with diminished tolerance showed an average vital capacity 26 per cent. below the average for the normals; and, five with cardiac failure showed a vital capacity from 30 to 50 per cent. below the average for normal subjects. The thirty-five children (potential group) with a normal exercise tolerance showed an average vital capacity equal to the average obtained for the normals. Vital capacity measurements show a close relation to the heart functional capacity, as gaged by the exercise tolerance.

**Value of Dry Milk Products.**—The main point in Bosworth's work is that the various dry milk products do not represent the constituents of whole fresh milk. They contain less fat, some contain more protein, sodium carbonate or bicarbonate; there is a change in the chemical arrangement of some of the constituents; and in all but one product examined there was an increase in the percentage of soluble calcium. This change in the solubility is an important factor to be considered in connection with the use of these dry milk preparations for infant feeding. Cow's milk when used as a food for infants, contains an excessive amount of available calcium and it is this available calcium which is responsible for the soapy stools and protein curds eliminated by most bottle fed infants. From this standpoint, therefore, any method or process which reduces the soluble and available calcium in cow's milk is a very desirable attainment.

**Size of Infantile Palate.**—Denzer's work establishes the greatest width (30.9 mm.), the greatest height (8.79 mm.), and the $\frac{\text{Height}}{\text{Width}}$ : index (28) of the palates of infants under 1 year of age, and may serve as a basis for further studies on the pathogenesis of malocclusion, mouth breathing and attendant facial malformations.

**Congenital Goiter.**—The absence of toxic thyroid symptoms or other endocrinopathy is especially noteworthy in the cases cited by Porter and Vonderlehr and the lack of pressure symptoms is quite remarkable. The fact, too, that goiter apeared only in male children and finding *Ascaris lumbricoides* in all four cases is also noteworthy. All the goiters were symmetrically enlarged, the most prominent part being the isthmus; their consistency was soft, and they were suggestive of goiters of the colloid type.

**Ammonia Dermatitis.**—The common erythematous or papulovesicular dermatitis of the gluteal region in infants Cooke asserts is caused by ammonia in the diaper and should be classed with other forms of dermatitis venenata. In both infants and older children with this affection, a characteristic gram-positive bacillus has been isolated from the stools in every case examined. This organism is a saprophyte but has the property of fermenting urea with the production of ammonia. It has been called *B. ammoniagenes*. The evidence presented indicates that "the ammoniacal diaper" and the dermatitis that accompanies ammoniacal urines are dependent on bacterial fermentation of urea. The micro-organism concerned is apparently the same in all cases and infests the diaper from the feces. This infestation can readily be suppressed and the ammoniacal fermentation eliminated by the use of antiseptics in the diaper. With the cause thus removed the dermatitis rapidly disappears.

**Abdominal Pain in Throat Infections.**—Brennemann is convinced that in the causation of these abdominal pains of throat infections, indigestion, myalgia, grippy aching, neuritis, a Head zone, or a referred pain from the thorax, or from the vertebral column carried along the intercostal nerves, play no part. He directs attention to the mesenteric and retroperitoneal glands. The cause of the pain may be, at least in part, a localized enteritis or colitis, rather than lymphadenitis and possibly some specific or selective localization may account for the fairly constant pain in the umbilical region. This might, perhaps, better than anything else, explain the varying nature of the pain, depending on the site and degree of involvement and on the amount of peristalsis that might be a factor in producing it.

**Anomaly of Heart.**—Ratner, Abbott and Beattie report a case of cor triloculare biventriculare in mirror-picture dextrocardia with persistent omphalomesenteric bay, right aortic arch and the pulmonary artery forming the descending aorta. There was complete absence of the interauricular septum, and this was associated with an anomalous entrance of the superior vena cava through a "persistent omphalomesenteric bay."

**Tuberculous Meningitis.**—A case of tuberculous meningitis is reported by Regan and Cheney which presents a rare pathologic condition of the spinal meninges causing a dry spinal subarachnoid space. This was due to the diffuse infiltration of the pia arachnoid membrane, from the cervical to the lumbar region, with innumerable tuberculous granulations producing marked thickening of the membrane, and causing adhesions between it and the dura, almost completely obliterating the spinal subarachnoid space except in the spinal cul de sac. No case reports of a similar nature have been found in the literature reviewed.

## American Journal of Physiology, Baltimore

October, 1921, **57**, No. 3

Effects of Pilocarpin on Salivary Secretion in Normal and Febrile Dogs. H. G. Barbour and B. P. Freedman, New Haven, Conn.—p. 387.
Rôle of Tissue Fibrinogen (Thrombokinase) in Fibrin Formation and Normal Clotting. C. A. Mills and G. M. Guest, Cincinnati.—p. 395.
Relation Between Vitamin B and Nutrition of Dog. G. R. Cowgill, New Haven, Conn.—p. 420.
Vitamin Studies. VII. Influence of Fresh Alfalfa on Weight of Testes in Single Comb White Leghorn Cockerels. R. A. Dutcher and S. D. Wilkins, Minneapolis.—p. 437.
*Anticoagulating Substances in Mucous Membrane of Uterus. J. L. King, Baltimore.—p. 444.
*Nature of Alcoholic Fermentation. C. C. Warden, Ann Arbor.—p. 454.
Heat Block of Sensory Fibers in Sciatic Nerve. E. O. Ostlund, P. C. Hodges and P. M. Dawson, Madison, Wis.—p. 470.
*Comparison of Rate of Diffusion of Certain Substances, Particularly Food Materials, Enzymes and Pro-Enzymes. A. J. Neill, Chicago.—p. 478.

**Anticoagulating Substances in Uterine Mucosa.**—A pressure juice obtained by King from the mucous membrane of the nonpregnant uterus of the pig frequently yields antithrombin. Antithrombin is seldom obtained from the pregnant organ. There is evidence for the presence of heparin—as described by Howell and Holt—in the tissue juice of the mucosa of both the pregnant and the nonpregnant uterus of the pig. Neither antithrombin nor heparin is obtained with regularity and it is suggested that their presence may be masked by an excess of thromboplastic substance. There is no reason for assuming that these anticoagulating substances have local function in the pig's uterus, though if present in the human being they might inhibit the coagulation of menstrual blood. Antithrombin and antiprothrombin were demonstrated in the mucous membrane of the pig's intestine. Neither fibrinogen, thrombin no antithrombin were demonstrated in menstrual blood. There is reason to believe that it clots as normal blood as it passes the uterine mucosa and that the discharge consists of serum and small bits of clot. There is some evidence that the thrombin of the serum has combined with antithrombin, forming metathrombin.

**Nature of Alcoholic Fermentation.**—It is believed by Warden that the experiments summarized in his paper warrant the tentative conclusions that alcoholic fermentation is due to a catalytic process operating at the surfaces of yeast cells, at the colloidal surfaces of yeast juice (zymase), and at artificial surfaces composed of specific fat complexes similar to those found to be present in yeast cells, and that the enzyme of yeast may be regarded as belonging to the cellular antigens.

**Rate of Diffusion of Fats and Fatty Acids.**—The addition of bile to neutral fats as well as fatty acids, Neill states increased the rate of their diffusion through a collodion membrane, just as it increases the rate of their absorption from the alimentary tract. Glycerol diffuses more rapidly than either oleic or palmitic acids or the sodium soap of these acids. The monosaccharides diffuse through the collodion membrane more rapidly than the disaccharides and these more rapidly than the polysaccharides. As a rule, the more powerful saline cathartics diffuse less rapidly than the less powerful ones. The conspicuous exceptions to this rule suggest that there are factors involved in the action of these cathartics other than simple diffusion and osmosis. The same amino acid, glycocoll, diffuses more rapidly than alanine; and acetic acid, a substance closely related to glycocoll, is more diffusible than propionic acid, a substance closely related to alanine. The enzymes ptyalin and catalase are not diffusible through a collodion membrane. Pepsin is diffusible while pepsinogen is not. Both trypsinogen and trypsin are diffusible, the trypsinogen being the more diffusible. Of all substances used in this investigation, urea was found to be the most diffusible.

## American Journal of Roentgenology, New York

October, 1921, **8**, No. 10

*Unusual Case of Pulmonary Neoplasm; Spindle Cell Sarcoma. J. S. Pritchard, Battle Creek, Mich.—p. 555.
*Dunham's Fans in Roentgen-Ray Study of Granite Dust Inhalation. D. C. Jarvis, Barre, Vt.—p. 560.
*Case of Osteosarcoma of Femur. L. B. Morrison, Boston.—p. 565.
Extra Bones in Wrist and Ankle Found by Roentgen Rays. A. H. Pirie, Montreal, Can.—p. 569.
*Primary Sarcoma of Vertebrae: Report of Four Cases. K. F. Kesmodel, Washington, D. C.—p. 573.
Physical Foundations of Deep Therapy Treatment. F. Dessauer, Frankfort-on-the-Main, Germany.—p. 578.
Effects of Scattered Roentgen Rays in Radiography. R. B. Wilsey, Rochester, N. Y.—p. 589.
Kearsley Stabilizer. W. D. Coolidge, Schenectady, N. Y.—p. 599.
Suggestion for Improving Visibility of Apical Field on Chest Radiogram. H. A. Bray, Ray Brook, N. Y.—p. 602.
Histologic Study of Effects of Radium on Carcinoma of Cervix. C. C. Norris and N. S. Rothschild, Philadelphia.—p. 604.
Simple Drying Rack for Films. A. Boutros, Denver, Colo.—p. 608.

**Sarcoma of Lung.**—The first symptoms in Pritchard's case were cough and blood-streaked sputum, associated with afternoon temperature of 100 or 101 F. and a pulse rate of from 96 to 108. Examination failed to reveal any pathology. Nineteen months after the original examination, physical examination of the chest reveal moist râles over the front and back of the right hilum. Fluoroscopic study showed an enlarged right lung-root shadow. Stereoroentgenograms revealed a small, distinct, clean-cut, rounded shadow in the upper part of the right lung root. The patient was placed on absolute rest treatment and all symptoms subsided rapidly, entirely disappearing in approximately four weeks from the appearance of the first symptoms. The patient resumed her duties as pupil-nurse and worked steadily without interruption or indisposition, except for a slight unproductive cough, for nearly ten months, when she had a recurrence of her former symptoms. These again disappeared after ten days' rest in bed. Several months later examination showed that the pulmonary pathology had increased to such an extent as to occupy most of the right thorax except the apex and the costophrenic angle. Still a diagnosis was not made. Operation was advised and performed. A tumor weighing 800 gm. was removed. It was found to communicate with the bronchus, and the occasional opening of this probably accounted for the periodical respiratory symptoms, which were followed by a cessation of the same for long periods of time. The similarity of the attacks in this case and those found in many cases of pulmonary tuberculosis was interesting as well as the lack of physical deficiency, such as loss of weight and strength during the sixteen months of tumor development and partial destruction.

**Roentgen-Ray Therapy of Bone Sarcoma.**—Morrison reports a case of osteosarcoma of the femur with metastasis in the left frontal and right occipital regions in which an apparent cure was effected by roentgen-ray therapy. It is interesting to note that the lesion in the thigh was operated on and a small portion removed for examination (osteosarcoma) though no attempt to eradicate the disease was made, and later there was a traumatic fracture. The lesion in the left frontal was incised and drained; the lesion in the occiput had no surgical interference, and with the same dosage applied here as over the frontal, healing is slower.

**Primary Sarcoma of Vertebrae.**—In three of Kesmodel's cases there was a history of trauma. The cases were: chondrosarcoma; small round cell sarcoma; fibrosarcoma with giant cells and "giant cell sarcoma."

## Canadian Medical Association Journal, Montreal

October, 1921, **11**, No. 10

*Treatment of Pneumonia with Special Reference to Use of Serum. C. P. Howard, Iowa City, Ia.—p. 709.
*Etiology of Renal Infections. D. W. MacKenzie, Montreal.—p. 714.
*Spinal Deformity as Cause of Cardiac Hypertrophy and Dilatation. F. G. Finley, Montreal.
Ganglion of Wrist Region. Report of Two Cases Showing Destructive Tendon Involvement. H. P. H. Galloway, Winnipeg.—p. 723.
*Cause of "Ammoniacal Diaper." A. P. Hart, Toronto.—p. 726.
Tuberculous Peritonitis. G. E. Wilson, Toronto.—p. 734.
A Method of Preventing the Absorption of Intestinal Toxins.—p. 739.
*Intestinal Tuberculous Infection in Children. H. H. Pitts, Montreal.—p. 740.
*Case of Woody Thyroiditis. D. Nicholson, Winnipeg.—p. 742.
Blood Transfusion in Severe Burns in Infants and Young Children. B. Robertson, Toronto.—p. 744.
Unsuspected Syphilis of Nervous System: Its Laboratory Diagnosis. H. B. Maitland, Toronto.—p. 752.
*Standardization of Certain Preparations of Digitalis. D. S. Lewis and C. F. Moffatt.
Research in Medicine. W. C. White.—p. 758.
Lethargic Encephalitis. A. A. Robertson, Montreal.—p. 762.
Cause and Treatment of Rickets. H. B. Cushman, Montreal.—p. 766.
Three Cases of Abdominal Tumor. H. H. McNally, Fredericton.—p. 768.

**Serum Treatment of Pneumonia.**—In spite of a more or less intensive study of the problems of pneumonia during the past ten years, particularly by the American research student, Howard says, we must confess that no startling advances have been made. However, even the most conservative are forced to admit that real progress has been achieved, and particularly in the recognition of the various types of pneumococci, and the preparation of a serum to combat one strain, at least.

**Etiology of Renal Infections.**—MacKenzie analyzes in detail 200 cases of pyelitis, twenty-one cases of perinephritic abscesses and 100 cases of renal tuberculosis.

**Spinal Deformity Cause of Heart Disease.**—Finley records four cases of extreme deformity of the thorax resulting in hypertrophy and dilatation of the heart with cardiac insufficiency. Two of these came to necropsy and showed kinking and narrowing of the great vessels, one of the aorta and the other of the pulmonary artery. It is well recognized that individuals with much thoracic deformity seldom attain old age. Most of them are carried off by pulmonary complications to which cardiac changes are an important contributory cause. Cardiac disease is responsible for no inconsiderable number of deaths occurring about middle life and often carrying the patient off before attaining an age much over fifty. Treatment in advanced cases can only be symptomatic and is then often futile. To avoid such conditions by early treatment of the spinal affection, Finley says, forms the only efficient method of action.

**Cause of Ammoniacal Diaper.**—Hart is convinced that the ammoniacal diaper is due to external causes, of which the first and by far the most frequent is that an alkali is left in the diaper after washing. The second and a not altogether infrequent cause is contamination of the urine with organisms either from an infection of the genito-urinary tract or from some contamination from the outside. The free ammonia which gives rise to the odor comes largely from the breaking down of ammonium salts in the urine so that among the factors which will influence the condition will be a liberal diet. A child on a full diet excretes more ammonium as ammonium salts than does one on a limited diet and, as has been seen, starvation treatment temporarily cures the condition. More or less correlated with this factor will be the age. In very young infants the condition is seldom met with; it is more marked in older children, who take more food. The acidity of the urine will play a part in that a urine which is near the neutral point will become alkaline and liberate ammonia much more readily, if either of the two external causes are present than will a highly acid urine. The administration of large doses of alkalies, however, will exert an influence by decreasing the excretion of ammonium salts. The concentration of the urine will also play a part, as a highly concentrated urine (one in which ammonium salts are also likely to be in greater concentration) will give off more free amomnia. However, when it is recognized that the ammoniacal diaper is due to external factors, and is not due to any pathological condition in the child, and when it is further recognized that these external factors (the alkali of the diaper and contaminating bacteria) can be removed by thoroughly rinsing for the one and boiling for the other and the condition thereby entirely relieved, then it will be evident from the standpoint of therapeutics that we need not consider all of the minor details which may influence the excretion of ammonia.

**Intestinal Tuberculosis in Children.**—The two cases reported by Pitts are both examples of generalized tuberculosis—one a miliary tuberculosis, the other a tuberculous meningitis—in which only a limited strictly localized more or less quiescent, tuberculosis of the intestine in an unusual situation, appeared as primary lesion. No tuberculosis existed anatomically elsewhere, with the exception of the mesenteric glands, which were, it appears, infected from the intestine. Important was the entire lack of tuberculous foci in lungs or even in the peribronchial glands. The small intestinal lesions, which in a cursory examination could easily have been overlooked, had led to a considerable involvement of the mesenteric glands alone from which generalization then occurred.

**Woody Thyroiditis.**—When a physician is consulted by a young or middle aged patient with a hard, smooth, painful swelling of the thyroid with or without thyrotoxic symptoms, Nicholson suggests that woody thyroiditis be considered in the differential diagnosis.

**Standardization of Digitalis Preparations.**—Seven tinctures and five infusions of B. P. strength were tested by Lewis and Moffatt in twenty-eight different experiments by means of the "eat method." Four tinctures were found to be of saistfactory strength. Three were notably weak. One or two tinctures produced few objective signs of digitalis action while others had a sudden explosive-like toxic action. The infusions were not so satisfactory as the tinctures, only one preparation coming within the standard. The active principles tested, strophanthin and digitalin, were much below standard, and not found to be reliable.

## Endocrinology, Los Angeles

September, 1921, **5**, No. 5

Significance of Internal Secretions in Disturbances of Metabolism and Digestion. A. Biedl, Prag.—p. 523.
Endocrine Problems in Pelvic Surgery with Special Reference to Vicarious Menstruation. C. Rosser, Dallas.—p. 537.
New Views as to Morphology of Thymus Gland and Their Bearing on Problem of Function of Thymus. J. A. Hammar, Upsala.—p. 543.
Unusual Disturbances of Endocrine Glands. O. T. Osborne, New Haven, Conn.—p. 574.
Case of Hypophyseal Tumor. M. L. Neff, Phoenix, Ariz.—p. 577.
Heart in Experimental Hyperthyroidism with Special Reference to Its Histology. H. Hashimoto, Tokio, Japan.—p. 579.
Changes in Blood Pressure in Case of Hypervagotonia Caused by Intravenous Injection of Adrenalin. J. J. IzQuierdo, Mexico City.—p. 607.

## Georgia Medical Association Journal, Atlanta

October, 1921, **10**, No. 17

Robert Battey (1828-1895). H. A. Kelly, Baltimore.—p. 693.
Pyloric Stenosis of Infancy from Surgeon's Viewpoint. C. W. Roberts, Atlanta.—p. 695.
Relation of Public Health Work to Physicians' Reports. T. F. Abercrombie, Atlanta.—p. 703.
Public Health Education in Georgia. R. A. Herring, Augusta.—p. 706.
School Child and His Problems. J. A. Johnston, LaFayette.—p. 708.
Value of Basal Metabolic and Blood Chemical Studies in Modern Medicine. M. F. Morris.—p. 715.
Interpretation of Headaches. M. T. Edgerton, Jr., Atlanta.—p. 718.
Hematuria. F. C. Nesbit, Atlanta.—p. 720.

## Iowa State Medical Society Journal, Des Moines

October, 1921, **11**, No. 10

Making of a Diagnosis. W. E. Sanders, Des Moines.—p. 375.
Roentgen Ray in Diagnosis and Management of Fractures. B. Allen, Iowa City.—p. 379.
What War Has Taught Us in Treatment of Fractures. F. R. Holbrook, Des Moines.—p. 382.
Special Field of Neurological Surgery After Another Interval. H. Cushing, Boston.—p. 385.
Prevention and Treatment of Wound Shock in Theatre of Army Operations. D. Macrae, Jr., Council Bluffs.—p. 394.
Iowa Medical Journalism. D. S. Fairchild, Clinton.—p. 400.

## Journal of Biological Chemistry, Baltimore

October, 1921, **48**, No. 2

*Quantitative Determination of Amino-Acids of Feeds. T. S. Hamilton, W. B. Nevens and H. S. Grindley, Urbana, Ill.—p. 249.
Synthesis of Inactive Para- and Anti-Hydroxyaspartic Acids (Aminomalic Acids). H. D. Dakin, Scarborough-on-Hudson, N. Y.—p. 273.
Inorganic Blood Phosphate. E. P. Lehman, St. Louis.—p. 293.
*Can "Home Grown Rations" Supply Proteins of Adequate Quality and Quantity for High Milk Production? III. E. B. Hart and G. C. Humphrey, Madison, Wis.—p. 305.
*Studies on Blood Sugar. Total Amount of Circulating Sugar in Blood in Diabetes Mellitus and Other Conditions. R. Fitz and A. V. Bock, Boston.—p. 313.
*Effect of Heating Antiscorbutic Vitamin in Presence of Invertase. E. Smith and G. Medes, Poughkeepsie, N. Y.—p. 323.
Effect of Certain Stimulating Substances on Invertase Activity of Yeast. E. W. Miller, Chicago.—p. 329.
Determination of Mono-Amino-Acids in Hydrolytic Cleavage Products of Lactalbumin. D. B. Jones and C. O. Johns, Washington, D. C.—p. 347.
*Zinc and Copper Content of Human Brain. M. Bodansky, Galveston, Tex.—p. 361.
Simplified Form of Apparatus for Air Analysis. C. C. Guthrie, Pittsburgh.—p. 365.
Gas Receiver of Convenient and Practical Form for Sampling Expired Air for Analysis. C. C. Guthrie, Pittsburgh.—p. 373.
*Bacteria as a Source of Water-Soluble B. Vitamin. S. R. Damon, Providence, R. I.—p. 379.
Characteristics of Certain Pentose-Destroying Bacteria, Especially as Concerns Their Action on Arabinose and Xylose. E. B. Fred, W. H. Peterson and J. A. Anderson, Madison, Wis.—p. 385.

*Excretion of Acetone from Lungs. A. P. Briggs and P. A. Shaffer, St. Louis.—p. 413.
Carbohydrate Content of King Salmon Tissues During Spawning Migration. C. W. Greene, Columbia, Mo.—p. 429.
*Vitamin Requirements of Certain Yeasts and Bacteria. C. Funk and H. E. Dubin, New York.—p. 437.
Effect of Subcutaneous Injections of Solutions of Potassium Cyanid on Catalase Content of Blood. W. H. Welker and J. L. Bollman, Chicago.—p. 445.
*Citric Acid Content of Milk and Milk Products. G. C. Supplee and B. Bellis, New York.—p. 453.
*Ammonia Content of Blood, and Its Bearing on Mechanism of Acid Neutralization in Animal Organism. T. P. Nash, Jr., and S. R. Benedict, New York.—p. 463.
Mechanism of Reduction of Nitrates and Nitrites in Processes of Assimilation. O. Baudisch, New Haven, Conn.—p. 489.
Physiologic Action of Some Protein Derivatives. M. Ringer and F. P. Underhill, New Haven, Conn.
VII. Influence of Various Protein Split Products on Metabolism of Fasting Dogs.—p. 503.
VIII. Influence of Nucleic Acids on Metabolism of Fasting Dogs.—p. 523.
IX. Alkali Reserve and Experimental Shock.—p. 533.
X. Influence of Nucleic Acid on Metabolism of Fasting Rabbit.—p. 537.
XI. Influence of Some Protein Split Products on Metabolism of Fasting Rabbits.—p. 549.
*Influence of Thyroparathyroidectomy on Blood Sugar Content and Alkali Reserve. F. P. Underhill and C. T. Nellans, New Haven.—p. 557.
Influence of Food Ingestion on Endogenous Purine Metabolism. W. C. Rose, Galveston, Tex.—pp. 563 and 575.

**Amino-Acid Content of Feeds.**—The amino-acid contents of oats, corn, cotton-seed meal, and alfalfa, as determined by the Van Slyke method, are reported on by Hamilton, Nevens and Grindley.

**Home Grown Rations Supply Sufficient Protein.**—Data are presented by Hart and Humphrey which show that it is entirely possible when feeding equal but limited amounts of protein to maintain nitrogen equilibrium and high milk production in dairy cows with a ration composed of either barley or corn supplemented with corn silage and alfalfa hay, but not with the whole oat grain so supplemented.

**Blood Sugar in Diabetes.**—The total amount of sugar in the blood of seven normal persons varied but did not exceed 7.5 gm. The plasma sugar was almost always considerably greater than the corpuscular sugar, but it did not exceed 4.85 gm. The total amount of sugar in the blood of nine diabetic patients also varied considerably. The highest blood sugar content estimated was 15 gm., and the highest plasma sugar was 10.78 gm. The plasma of the diabetic bloods, relatively, contained much more sugar than did the corpuscles. This suggests that the plasma in diabetes is a vehicle for the transportation of sugar from the body cells, which are unable to burn or store it, to the kidney which excretes it, and that the blood corpuscles are but little concerned with such transportation of sugar, a statement which is supported by the fact that the sugar content of the individual corpuscle tends to be fixed within rough limits. If the number of corpuscles is increased, a sin polycythemia, the total corpuscular sugar is increased. If the number of corpuscles is much diminished, as in anemia, the amount of corpuscular sugar is diminished. Glycosuria does not occur unless the plasma sugar exceeds a certain threshold. Blood sugar concentration expressed as milligrams per hundred c.c. of blood or plasma may give misleading information with regard to the total amount of circulating sugar. The threshold at which glucose appeared in the urine of the diabetic patients of this series seemed to lie between 5.20 and 5.36 gm. of total plasma sugar. The total plasma sugar offered a more rational basis of comparison with sugar excretion than did the plasma sugar concentration alone.

**Effect of Heating Antiscorbutic Vitamin.**—Smith and Medes assert that heating for four hours at a temperature of 76 C. either in the presence of invertase or in its absence, causes a more rapid destruction of the vitamin than heating at 55 C. Heating for four hours at 38 C., does not cause an appreciably greater loss of antiscorbutic value than keeping at room temperature.

**Zinc and Copper Content of Brain.**—The results of the analyses by Bodansky of four adult brains and of a fetal brain indicate that copper and zinc are normal constituents of the human brain. It appears that during intra-uterine life there is more rapid storage of zinc and copper in the brain than there is after birth. In this respect the behavior of these elements is similar to that of other inorganic constituents of animal tissues such as iodin, sulphur and phosphorus.

**Bacteria Not Source of B. Vitamin.**—The experimental data presented by Damon indicate that so far as *B. paratyphosus* B, *B. coli* and *B. subtilis*, are concerned there is no production of vitamin by these organisms.

**Excretion of Acetone from Lungs.**—The distribution of acetone in whole blood, blood plasma, blood serum, urine and alveolar air of dogs which had been injected with large doses has been determined by Briggs and Shaffer. The results show that the concentration of acetone in urine is about the same as that of whole blood and blood plasma and that the ratio of acetone in blood to that in alveolar air is about 333. The distribution of acetone between alveolar air and blood of human diabetics and of normal fasting subjects was also determined and found to average 355. It is concluded that acetone is excreted from the lungs and kidneys by the physical process of diffusion, thus confirming the recent observations of Widmark.

**Vitamin Requirements of Yeasts and Bacteria.**—Funk and Dubin have separated from vitamin B a substance which they term provisionally vitamin D and which acts on microorganisms. Vitamin D appears to be a definite and specific substance stimulating the growth of yeast. Streptococcus is more difficult to study because apparently it needs at least two substances for growth. Although vitamin D has been obtained free from vitamin B, the reverse is not true. It is evident, therefore, that most animal tests conducted up to the present were carried out with a mixture of vitamins B and D and will consequently have to be repeated as soon as a clear separation of the two substances can be effected. It may develop that the vitamin D, obtained from yeast, and the vitamin-like substance obtained from proteins, such as casein, may have some special function in the body, and such experiments are now being planned.

**Citric Acid Content of Milk.**—While there is a marked variation in citric acid content of the milk from individual animals, which may be explained as due to the individuality of the particular animal, certain data presented by Supplee and Bellis however, indicate that the ration may have a slight effect upon this constituent. There is apparently no effect on the citric acid content of milk caused by heating during the manufacture of evaporated, condensed, and dried milks. The results indicate that the amount found in each of these products, if subject to variation, must be attributed to causes other than heat. The parallelism between citric acid content and antiscorbutic properties does not hold true in the case of concentrated milk products; the potency of this factor has been shown to be absent in some of the heated products and present in others. The citric acid content however, seems to be present in all of them apparently to the same degree as found in natural raw milk. The citric acid content of milk decreases during aging in the presence of high developed acidity, and is more rapid in raw milk than in pasteurized milk.

**Ammonia Content of Blood.**—In view of the findings that there is no accumulation of ammonia in the blood in phlorizinized dogs, or in dogs without functioning kidneys, Nash and Benedict were led to the conclusion that the kidneys themselves must produce the urinary ammonia. The blood of the renal vein is invariably much higher in ammonia content than the systemic arterial or venous blood. The blood from the renal vein averages twice as much ammonia as does the blood from other sources. These differences are so marked as to admit of only one interpretation; viz., that the kidney, instead of excreting ammonia from the blood, forms the ammonia which it excretes, while at the same time it contributes a small amount of ammonia to the blood. Acid or alkali injection have no influence on the ammonia content of the systemic blood. Regarding the kidney as the seat of ammonia production, depletion of the alkali reserve the authors state becomes readily understandable under certain definite conditions. If ammonia is not available within the organism the acids must be transported wholly in combina-

tion with the fixed bases, or with protein. It seems from these results that acidosis in the sense of depletion of the alkali reserve is primarily a kidney disease.

**Influence of Parathyroidectomy on Blood Sugar Content.**—In spite of contrary findings by Hastings and Murray, repetition of previous experiments leads Underhill and Nellans to the reiteration of a former conclusion; namely, that thyroparathyroidectomy results in a lowered blood sugar content. After this operation there seems to be little or no change in the carbon dioxid capacity of the blood up to the onset of tetany. After this period there may be a decided tendency toward a diminished alkali reserve.

## Journal of Medical Research, Boston

June-September, 1921, **42**, No. 4

Modified McClendon Direct Reading Potentiometer for Use at Varying Room Temperatures. R. N. Nye, Boston.—p. 303.
*Tonsils as Foci of Infection. R. A. Keilty, Danville, Pa.—p. 315.
Viability of Meningococcus. H. Weiss, Boston.—p. 321.
*Relation of Hodgkin's Disease to Sarcoma. T. Mueller, Buffalo.—p. 325.
*Comparative Study of Wassermann and Sachs-Georgi Reactions. R. D'Aunoy, New Orleans.—p. 339.
*Cytologic Observations on Pars Buccalis of Hypophysis Cerebri of Man, Normal and Pathologic. P. Bailey, Boston.—p. 349.
Group of Hydrogen Sulphid Producing Bacteria. L. S. Thompson, Philadelphia.—p. 383.
*Hyperplasia of Parathyroids in Human Rickets. A. M. Pappenheimer and J. Minor, New York.—p. 391.
Growth of B. Influenzae Without Presence of Hemoglobin. A. W. Williams and O. R. Povitzky, New York.—p. 405.
Trypanosoma Lewisi in Boston Rats. S. Warren.—p. 419.

**Tonsils as Foci of Infection.**—Keilty reports finding of 985 organisms representing sixteen different types and fifty-three combinations occurring in a total of 388 cases. The general character of the organisms is that usually found in oral flora. Streptococcus predominates, closely followed by the staphylococcus, these two organisms occurring in 65 per cent. of the total organsms. This paper offers proof that the tonsils harbor micro-organisms within their bodies and are to be considered as inactive foci of infection. There is nothing to prove that the tonsils are active foci of infection in the sense that organisms present are poured into the circulation or act as stimuli for disease in other parts of the body.

**Hodgkin's Disease and Sarcoma.**—Two cases of Hodgkin's Disease are reported by Mueller, which show a change in the histologic structure from typical lymphogranuloma to round cell sarcoma or vice versa. In one of the cases the disease exhibited malignant neoplastic properties with invasion of lungs, aortic wall, and spinal canal. From a histologic-anatomic point of view, the opinion seems justified that lymphogranuloma and round cell sarcoma of the lymph nodes are only different expressions of the same process. The cause for the sarcomatous infiltrating course of the disease is to be sought in the individuality of the patient, in the amount and virulence of the causative agent, and the duration of its action on the lymphatic tissue.

**Comparison of Wassermann and Sachs-Georgi Tests.**—A comparative study of the flocculation reaction of Sachs and Georgi and the original Wassermann reaction was made by D'Aunoy with 2,150 serums obtained from hospitalized cases. Identical results were secured in 98.07 per cent. of tests. In one instance alone was the Sachs-Georgi reaction negative and the original Wassermann reaction positive. All serums in the series showing spontaneous flocculation when using Sachs-Georgi technic gave so-called "anticomplementary results" when using the original Wassermann reaction.

**Staining Granules in Pituitary Cells.**—A method is given by Bailey for staining sharply and differentially the eosinophilic and basophilic granules in the same preparation. Preparations stained by this method show that although the basophilic and eosinophilic cells arise from indistinguishable reserve cells they develop along constantly diverging lines. The anatomic evidence is shown to be consistent with the view that the lipoid, colloid, hyalin and other changes occurring in the pituitary with age and after certain manipulations of the other glands of internal secretion are purely degenerative.

**Hyperplasia of Parathyroids in Rickets.**—The observations made by Pappenheimer and Minor bring additional evidence to bear in favor of the occurrence of parathyroid enlargement in human rickets. This increase in size is due to multiplication of cells, not to an increase in the size of individual cells. The parathyroids in children within the first eighteen months of life consist almost entirely of clear cells belonging to Type I. In human rickets there is no constant or characteristic change in the cell type, and the clear cell still remains markedly predominant. In the cases studied there was no increase in supporting tissues in the parathyroid gland in rickets, and no increase in vascular supply or congestion of the blood vessels not found equally in nonrachitic cases. The state of nutrition of the child had no bearing on the size either of the gland as a whole or of the individual elements.

## Laryngoscope, St. Louis

October, 1921, **31**, No. 10

Studies in Otology—Using Pitch Range Audiometer. L. W. Dean, Iowa City.—p. 743.
Demonstration of Improved Methods of Measuring Tonal Range, Showing Progressive Development of Apparatus. C. C. Bunch, Iowa City.—p. 760.
Differentiation of Early Meningitis and Mastoiditis. W. J. Mellinger, Santa Barbara, Calif.—p. 772.
Tonsil Question Up To Date. G. F. Keiper, Lafayette, Ind.—p. 777.
Syphilis as Factor in Mastoiditis, Producing Symptoms of Sinus Thrombosis. Report of Case. W. G. Shemeley, Jr., Philadelphia.—p. 792.
Hemangioma of Larynx. T. H. Sweetser, Minneapolis.—p. 797.

## Maine Medical Association Journal, Portland

October, 1921, **12**, No. 3

How to Meet Some Daily Problems of General Practitioner. H. E. Marston, North Anson.—p. 63.
General Practitioner as Business Man and Citizen. D. M. Stewart, South Paris.—p. 68.
Doctor and Preventive Medicine. A. L. Smith, Machias, Me.—p. 75.

## Mental Hygiene, Albany, N. Y.

October, 1921, **5**, No. 4

Significance of Conditioned Reflex in Mental Hygiene. W. H. Burnham.—p. 673.
Elementary School and Individual Child. E. L. Richards, Baltimore.—p. 707.
Extra-Medical Service in Management of Misconduct Problems in Children. M. E. Kenworthy, New York.—p. 724.
Mental Hygiene and College Student—Twenty Years After.—p. 736.
Mental Hygiene Problems of Normal Adolescence. J. Taft, Philadelphia.—p. 741.
Suicide in Massachusetts. A. W. Stearns, Boston.—p. 752.
Function of Correctional Institution. H. M. Adler, Chicago.—p. 778.
What is a "Nervous Breakdown"? A. E. Johnson, Philadelphia.—p. 784.
Mental Hygiene and Public Library. M. V. Clark, New York.—p. 791.
Inadequate Social Examinations in Psychopathic Clinics. D. Q. Hale.—p. 794.
Eugenics as a Factor in Prevention of Mental Disease. H. M. Pollock, New York.—p. 807.
Mental Hygiene Problems of Maladjusted Children as Seen in Public Clinic. A. L. Jacoby, Detroit.—p. 813.
Speech Defects in School Children. S. Blanton, Waukesha, Wis.—p. 820.
Extra-Institutional Care of Mental Defectives. E. W. Fuller, New York.—p. 828.

## Michigan State Medical Society Journal, Grand Rapids

November, 1921, **20**, No. 11

Address of Dean at Opening of Medical School of University of Michigan. H. Cabot, Ann Arbor.—p. 431.
Is Mortality of Appendicitis Increasing? H. E. Randall, Flint.—p. 435.
Transduodenal Biliary Drainage a Valuable Diagnostic and Therapeutic Measure. C. F. Stewart, Battle Creek.—p. 438.
Problems in Care of Industrial Injuries of Eye. H. L. Begle, Detroit.—p. 443.
Treatment of Subacute and Chronic Otitis Media with Use of Roentgen Ray. R. Beattie, Detroit.—p. 449.
*Sole Print Identification of New-Born. E. L. Robinson, Detroit.—p. 451.
Artificial Pneumothorax in Acute Tuberculous Pneumonia, Pulmonary Abscess and Pulmonary Hemorrhage. C. H. Johnston, Grand Rapids.—p. 453.
Abdominal Pain Relieved by Removal of Apparently Healthy Appendix. B. H. Larsson, Detroit.—p. 456.
In Final Analysis is Lane's Kink Really a Trouble Maker, or Has It Life Saving Function? H. J. Vanden Berg, Grand Rapids.—p. 460.
Improved Gastroduodenal Tube. B. C. Lockwood, Detroit.—p. 460.

**Sole Print Identification of New-Born.**—The Maternity Department of St. Mary's Hospital, Detroit, has instituted routine sole printing of all of the new-born infants. Prints of the soles of the baby's feet and of the first three fingers of

the mother's right hand are impressed on a card, this being done before they are removed from the delivery room. The mother's finger prints are added to prove the baby's sole prints. Prints are made before removal of the patients from the delivery room for the same reason. The prints are classified and filed. A separate index is kept, including the mother's name, babe's name, and classification formula, should it become necessary to refer to any of the prints without a duplicate print to serve as a guide. The apparatus used is the same as is used in taking finger prints.

## New York Medical Journal

Oct. 5, 1921, **114**, No. 7

Etiology and Treatment of Eclampsia. B. C. Hirst, Philadelphia.—p. 377.
*Surgical Endothermy in Malignancy and Precancerous Conditions. G. A. Wyeth, New York.—p. 379.
Treatment of Carcinoma of Cervix and Uterus by Radium Supplemented by Deep Roentgen-Ray Therapy. R. H. Boggs, Pittsburgh.—p. 381.
Prophylaxis in Carcinoma. I. Smiley, New York.—p. 384.
Obstetric End Results of Trachelorrhaphy Operation. M. O. Magid, New York.—p. 387.
Drainage in Pelvic Abdominal Surgery. H. Kelly, Baltimore.—p. 390.
Comparative Value of Whole Ovarian Extract, Corpus Luteum Extract, and Ovarian Residue in Menstrual Disorders. J. C. Hirst, Philadelphia.—p. 391.
Dysmenorrhea. J. V. Young, New York.—p. 395.
Two Cases of Acute Inversion of Uterus. W. P. Manton, Detroit.—p. 397.
Present Status of Treatment of Uterine Fibroids. S. Wiener, New York.—p. 400.
Unilateral Twin Tubal Pregnancy. Max Thorek, Chicago.—p. 403.
Review of Recent Obstetric Progress. J. O. Arnold, Philadelphia.—p. 405.
Practical Prenatal Care. P. Oginz, Brooklyn.—p. 408.
Accidents During Delivery. C. M. Stimson, Philadelphia.—p. 410.
Antenatal Factors of Life and Death-Genetic, Toxigenetic, Gestational and Obstetric. C. W. Saleeby, London.—p. 413.
Dangers and Treatment of Antenatal Syphilitic Environment. J. H. Sequeira, London.—p. 415.
Congenital Abdominal Ascites with Other Abnormalities. L. Blumenfeld.—p. 416.

**Endothermy for Malignant Disease.**—Wyeth is convinced that surgical endothermy on account of its power to attack accessible lesions, can render operable many so-called inoperable cases, and that with radium needles and deep penetrating roentgen-ray therapy it is a trustworthy ally in the fight against malignancy.

Nov. 2, 1921, **114**, No. 9

Pathology of Syphilis of Central Nervous System with Digest of Serological Reactions. R. A. Keilty, Danville, Pa.—p. 497.
Method of Preserving the Antigenic Properties of Gonoroccal Proteins in Glycerol. R. O. Clock and S. D. Beard, Pearl River, N. Y.—p. 499.
*Floccule Inhibition Reaction in Blood Serum in Syphilis. R. A. Kilduffe, Pittsburgh.—p. 502.
Nature of Antibodies and Complement in Relation to Immunity. F. Herb, Chicago.—p. 503.
Syphilis. J. H. Stevens, Boston.—p. 508.
Unilateral Nephritis. N. P. Rathburn, Brooklyn.—p. 515.
What the General Practitioner Should and Must Know About Kidney Diseases. H. Halpert, Scranton, Pa.—p. 520.
Case of Stone in Ureter Voided After Fulguration. W. F. McKenna, Brooklyn.—p. 522.
Chronic Nephritis with Double Edebohl's Operation. N. W. Vaux, Philadelphia.—p. 524.
Important Points in Diagnosis and Treatment of Chronic Gonorrhea in Male. B. Rosenthal, New York.—p. 525.
Defective Teeth as Cause of Two Cases of Infection of Genitourinary Tract and of Two Cases of Asthma. G. A. Rueck, New York.—p. 527.
Some Aspects of Syphilis in Its Relation to Psychoses and Psychoneuroses. F. H. Barnes, Stamford, Conn.—p. 529.
Mercurial Therapeusis of Syphilis. L. G. Hadjopoulos, R. Burbank and L. P. Kyrides, New York.—p. 532.
Practical Control of Venereal Disease in England. E. A. Rout, London.—p. 536.

**Floccule Inhibition Reaction in Syphilis.**—The technic of the test was standardized by Kilduffe by adding to 1 c.c. of clear, fresh serum in a narrow test tube 0.5 c.c. of 1 per cent. mercuric chlorid. A series of sixty-five serums was subjected to the test being derived from cases for diagnosis. The Wassermann reaction was strongly positive in fourteen cases (plus four), weakly positive in three cases (plus two to plus three), and the remainder of the serums were Wassermann negative. While occasionally the formation of a precipitate was somewhat retarded, in only six cases did flocculation fail to occur after the addition of the mercuric chlorid solution and within the five minute period. One of these serums was Wassermann positive (plus four) the other five being Wassermann negative. The fallacious results obtained indicate that the rest is unreliable from a diagnostic viewpoint.

## Wisconsin Medical Journal, Milwaukee

October, 1921, **20**, No. 5

Plea for Gridiron Incision in Appendicitis. V. F. Marshall, Appleton.—p. 215.
Gallstones: Their Basal Etiology. E. Henes, Jr., Milwaukee.—p. 220.
Management of Cardiac Diseases in Children's Dispensary. A. B. Schwartz, Milwaukee.—p. 225.
Epidemic of Gastroenteritis. G. H. Fellman, Milwaukee.—p. 227.
Defective Delinquents in Army of Occupation or American Forces in Germany. L. V. Briggs.—p. 230.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Medical Journal, London

Oct. 29, 1921, **2**, No. 3174

*Clinical Types of Convulsive Seizures in Very Young Babies. J. Thomson.—p. 679.
Bilateral Rigidity in Middle Meningeal Hemorrhage. G. Jefferson.—p. 683.
*Metatarsus Varus. A. S. B. Bankart.—p. 685.
*Two Cases of Pernicious Anemia with Infective Foci in Alimentary Tract. E. F. Maynard and S. D. Sturton.—p. 685.
Use of Hot Wire for Investigating Time Relations of Pulse and Characteristics of Voluntary Contraction in Man. A. V. Hill.—p. 686.
*Etiology and Treatment of Varicose Ulcers. W. R. Grove and H. W. C. Vines.—p. 687.
Anaphylatoxin. H. H. Dale.—p. 689.
Certain Electrical Signs of Human Body. M. C. Potter.—p. 689.
Poison Organs and Venoms of Venomous Fish. H. M. Evans.—p. 690.
Physiology of Oral Hygiene. J. S. Wallace.—p. 692.
Chemotherapy of Pyogenic Infections: Antiseptic Properties of Acridine Compounds. C. H. Browning and J. B. Cohen.—p. 695.
Neurasthenic Element in Midwifery and Gynecology. A. Donald and E. F. Buzzard.—p. 699.
Extraction of Pin from Right Bronchus in Child. W. B. Brownlie.—p. 705.
Suprarenal and Pancreatic Hemorrhages Following Operation. C. J. Lewis.—p. 706.

**Convulsions in Infants.**—In 4,348 children under 4 who were seen by Thomson the fits began during the first three months in 3.5 per cent., during the second six months in nearly 8 per cent., during the third six months in nearly 9 per cent., and during the later six-month periods in between 7.1 and 7.6 per cent. Of 200 cases of convulsions in infants of 3 months and less, seventy-one were due to local injury or disease of the brain or its membranes; seventy-two were due to cerebral disturbance caused by acute disease of organs other than the brain and fifty-seven were due to cerebral disturbance connected with various forms of general infection and of debility. The most remarkable fact about the attacks in the cases of the third class is that in a large majority of the cases they were permanently stopped by a merely temporary chloralization of the patient.

**Metatarsus Varus.**—Bankart suggests as a treatment in these cases to remove bone from the outer side of the foot. By removal of the cuboid the outer border of the foot is shortened and the metatarsus is abducted and brought into line with the posterior part of the foot. This in Bankart's experience gives the best correction of the deformity with the least disturbance of function.

**Pernicious Anemia with Gastro-Intestinal Pathology.**—In one case cited by Maynard and Sturton there was a history of colitis, in the second case diarrhea was present. In the first case a definite ring of ulcers was found in the intestine, and in the second an infective focus in the teeth.

**Parathyroid Gland Substance in Treatment of Varicose Ulcers.**—The first form of treatment used by Grove and Vines was the intramuscular injection of calcium chlorid. The results obtained were not satisfactory. Improvement or retrogression of the ulcer ran roughly parallel with the rise or fall of the ionized calcium content of the blood. The second form of treatment used was the combination of calcium injections with the oral administration of thyroid gland substance. This produced effects which were not markedly different from those obtained with the injections alone. Parathyroid gland substance, 1/10 grain, by mouth daily, was next used, and with this treatment an immediate improve-

ment seemed to take place. The ionized calcium of the serum rose rapidly to the normal figure, and the local condition showed early signs of healing; it was found unnecessary to continue the calcium injections. In cases treated with parathyroid alone from seven to fourteen days seemed to be the period required for the drug to produce its maximal effect, though the time taken for complete healing to occur was dependent on the size of the ulcer. One-tenth grain of the parathyroid substance is given daily until healing has occurred, and then twice a week for three or four weeks. The ulcers were covered with plain gauze or boracic lotion, though in some cases no dressing at all was used. The best results were obtained when the patient was kept in bed. The fact that parathyroid administration has so great an effect in causing these ulcers to heal seems to point to the possibility that a partial deficiency of the parathyroid secretion may play some part in their causation, and this supposition is strengthened by the fact that the parathyroids are recognized regulators of calcium metabolism.

## Journal of Tropical Medicine and Hygiene, London

Oct. 1, 1921, **24**, No. 19

Case of Fever Resembling Dengue Occurring at Accra, Gold Coast. J. F. Corson.—p. 253.
Treatment of Fluke Diseases. F. G. Cawston.—p. 254.
Further Cases of Blackwater Fever in British Solomon Islands. N. Crichlow.—p. 255.

Oct. 15, 1921, **24**, No. 20

*New Method of Treatment of Human Trypanosomiasis. C. H. Marshall.—p. 265.
Cases of Bilharzia Disease Treated with Tartar Emetic. F. G. Cawston.—p. 267.
Climate and Health of British Solomon Islands. N. Crichlow.—p. 268.

**Blood Serum Treatment of Trypanosomiasis.**—Marshall injects a neo-arsphenamin preparation into a vein and later draws off a quantity of blood into a sterile covered vessel, allows it to clot, and then injects the clear serum into the spinal canal, after an equal quantity of cerebrospinal fluid has been withdrawn by lumbar puncture. The blood has been withdrawn from half an hour to four hours after the injection, and has been allowed to clot for from twelve to forty-eight hours before from 8 to 25 c.c. of the clear serum have been injected into the spinal canal. Only one such injection appears to be required.

## Lancet, London

Oct. 29, 1921, **2**, No. 5122

Chronic Inflammatory Diseases of Spleen. A. G. Gibson.—p. 885.
*Treatment of Acute Suppuration. F. D. Saner.—p. 891.
*Arrest of Auricular Fibrillation by Use of Quinidin. A. W. M. Ellis and A. E. Clark-Kennedy.—p. 894.
*Acidosis and Toxic Symptoms of Severe Diarrhea in Infancy. R. A. Guy.—p. 898.
Case of Pyonephrosis and Ureteral Calculus. A. Beresford-Jones.—p. 900.
*Belladonna Poisoning from Eating Rabbit. D. Firth and J. R. Bentley.—p. 901.
*Tungsten Rays. W. J. Burroughs.—p. 901.

**Relief of Tension Not Drainage.**—Saner says that the constant use of the word "drainage" has given rise to the idea that drainage is the chief and most important factor in the treatment of suppuration. Further, in the endeavor to secure "drainage" the drainage-tube per se has become an idée fixe. Saner suggests that the word drainage be eliminated and replaced by "relief of tension." The latter phrase does not suggest to the mind a means of drainage, but rather implies an opening, a line of least resistance in the direction of safety, along which the products of inflammation may escape. "Relief of tension" and the creation of a line of least resistance fulfil a fundamental principle in the treatment of acute septic conditions. The relief must be complete and the line must be maintained, and it is in the maintaining this line that the chief difficulties of technic arise. Nature, assisted in this way, will create her own drainage, and will gradually cast out the debris of dead tissue which is in itself harmless, except as a suitable soil for the growth of organisms.

**Quinidin in Auricular Fibrillation.**—Out of seven cases of well-established auricular fibrillation reported by Ellis and Kennedy in five the administration of from 5 to 30 grains of quinidin by mouth has been associated with return to the normal cardiac rhythm. In all these five cases the change has been demonstrated by polygraph tracings, and in two of them by the appearance of a crescendo presystolic murmur at the apex. In one of these five relapse occurred soon after the drug was stopped, and again a second time when the dosage was reduced. In two the dosage was only decreased and there was no relapse into auricular fibrillation. In two of the five cases, shortly after the onset of normal cardiac rhythm, embolic infarction of internal organs occurred. The authors point out that the use of quinidin is not without danger, the risk of embolism being a real one. In their cases the improvement in the general condition was not striking, and much less marked than might have been expected and perhaps little more than might be attributed to the prolonged rest in bed. Certainly no dramatic change in the patient's general condition occurred when normal cardiac rhythm was restored. If the drug is stopped tendency to relapse seems to be the rule. That quinidin will take a place in the treatment of cardiac disease seems probable, but the nature of its action and the limitations of its therapeutic value remain to be determined.

**Lowered Alkali Reserve in Diarrhea.**—In certain of the diarrheas of infancy, symptoms of intoxication, the chief of which is increased pulmonary ventilation, are accompanied by a reduction in the reserve of bicabonate in the blood plasma. The hyperpnea and the alkali reserve vary inversely. According to Guy, the reserve can be increased to normal by the administration of sodium bicarbonate. Hyperpnea is thus controlled and the general toxic symptoms are alleviated, but the ultimate outcome, in the diarrheal cases at any rate, is little influenced. His observations confirm the work of previous investigators.

**Belladonna Poisoning from Eating Rabbit.**—Bentley reports three cases of belladonna poisoning resulting from eating the flesh of a rabbit which had been feeding on belladonna leaves.

**Tungsten Rays in Superficial Suppuration.**—In all cases of superficial suppuration in which Burroughs has used tungsten rays a complete cure has resulted. He used an apparatus consisting of two electrodes of pure tungsten actuated by a current of 100 volts and 5 amperes.

## National Medical Journal of China, Shanghai

September, 1921, **7**, No. 3

Second Pneumonic Plague Epidemic in Manchuria, 1920-1921. Wu. L. Teh.—p. 98.
Opportunities for Chemical Research in Chinese Materia Medica. B. E. Read.—p. 121.
*Effect of Sun's Rays on Hats in Summer. W. L. Teh.—p. 128.
Life and Work of Medical Students and Doctors. D. Gray.—p. 130.
Urinary Calculus at Canton Hospital, Canton, China. J. O. Thomson.—p. 136.

**Best Hats for Summer Wear.**—Hats made of different materials and varying in shape were exposed by Wu to the direct sun's rays for certain lengths of time and the temperatures of the thermometers placed inside each hat noted. The most serviceable headgear for summer wear appears to be the stiff, properly ventilated, pith or rag made helmet, lined if possible with green cloth inside. The stiff straw boater, first invented in England and now largely made in Japan, appears unsuitable as it conducts the heat direct and retains it next to the head. The spring felt or velour hat as well as the closely fitting cap should be avoided in the daytime. The soft, easily fitting Tientsin hemp-braided hat introduced this year and costing one dollar each may be recommended because of its comfort, coolness and nonconcentration of heat.

## Quarterly Journal of Medicine, Oxford

October, 1921, **15**, No. 57

*Sugar Content of Cerebrospinal Fluid; Diagnostic Value, Especially in Lethargic Encephalitis. R. Coope.—p. 1.
*Percentage of Sugar in Blood of Atrophic Infants. R. A. Guy.—p. 9.
*Four Cases of Paroxysmal Tachycardia. E. E. Laslett.—p. 18.
*Clinical Manifestations of Syphilitic Infection on Heart. W. Stobie.—p. 26.
*Concentration of Nitrogenous Metabolic Products in Blood under Physiologic and Pathologic Conditions. H. F. Host and R. Hatlehol.—p. 43.
Exophthalmic Goiter. J. M. H. Campbell.—p. 55.
Results of Gonorrheal Infection of Nervous System. Review of Literature. E. O'Connor.—p. 69.

**Diagnostic Value of Sugar Content of Cerebrospinal Fluid.**—A study of the literature on this subject brings out two points: First, a "high" sugar content should not be regarded as a positive diagnostic sign of lethargic encephalitis; second, a low sugar content (provided the fluid is fresh) is a very strong indication of an acute or tuberculous meningitis. Coope's findings in ninety-five cases confirm these conclusions. It has not been possible simultaneously to examine the sugar content of the blood. The method used was that described by Folin and Wu for blood sugar.

**Blood Sugar in Atrophic Infants.**—The blood sugar of forty-three normal infants was examined by Guy and no constant variation with age was observed. Thirty blood sugar determinations were made in eighteen atrophic infants. Although almost all of the infants were less than 65 per cent. of their expected weight, the percentages of blood sugar fell between 0.06 and 0.08, that is, within normal limits, except in six cases in which less than 0.06 per cent. blood sugar was found. In these six cases, the only common factor observed was vomiting during the day on which the analyses were made. The bicarbonate reserve of the plasma did not vary either directly or inversely with the sugar content of the blood or the percentage of the expected weight of the infant. The blood sugar determined three to four hours after food showed no relationship to the amount of carbohydrate ingested. Estimations were therefore made less than three hours after the ingestion of food. There was no relationship between the percentage of sugar in the blood and the weight trend. Guy concludes, therefore, that the percentage of sugar as usually observed in the peripheral blood cannot be used as an indication of carbohydrate absorption.

**Paroxysmal Tachycardia.**—In three cases cited by Laslett the paroxysms were apparently induced by excessive indulgence in tobacco. In two cases the paroxysms ceased when smoking was given up, or much limited. In the third case, that of a young man who died suddenly at the end of an attack, there was no opportunity of testing the effect of abstention but he had indulged very extensively in cigarets. In the fourth case a history of rheumatism was obtained.

**Syphilis of Heart.**—Syphilitic infection of the heart may occur in the congenital or acquired form of the disease either at an early or late stage. In the series of cases investigated by Stobie, the anatomic lesions found after death have been: (*a*) gumma of endocardium, one instance; (*b*) fibrosis of myocardium, one instance; (*c*) aneurysmal dilatation of the heart wall, one instance; (*d*) thickening of endocardium with coronary artery disease, one instance; (*e*) pericardial effusion containing spirochetes with small gumma under endocardium, one instance. In thirteen out of the eighteen cases of aortic disease investigated evidence of a specific infection was obtained. Out of fifteen cases, three patients with suggestive personal or family histories had positive Wassermann reactions. A mild degree of the Stokes-Adams syndrome, and also alternation of the heart, have been noted. Sudden death occurred in two patients, in one of whom a gumma of the endocardium was found at necropsy, and, in the other thickening of the septal endocardium. The symptoms complained of were anginal and fainting attacks with precordial pain and shortness of breath.

**Retained Nitrogenous Products and Uremia.**—The pronounced parallelism observed by Host and Hatlehol in four patients between the increasing concentrations of the residual nitrogen, urea nitrogen, and creatinin, on the one hand, and the clinical symptoms on the other, they believe, supports the assumption that there is a causal relation between the retained nitrogenous metabolic products and the clinical symptom complex uremia.

## Tubercle, London

October, 1921, **2**, No. 1

*Relationship Between Deficiency in Vitamin A and Tuberculosis. S. R. Gloyne and D. S. Page.—p. 577.
*High Altitude and Tuberculosis. O. Amrein.—p. 580.
*Dropped Shoulder as a Sign of Early Phthisis. J. A. Delmege.—p. 583.

**Vitamin Deficiency and Tuberculosis.**—Three rats fed on a diet deficient in vitamin A and inoculated with tubercle bacilli died (the fourth was killed on the seventh day) earlier than four uninoculated rats receiving the same diet, but postmortem no naked eye lesions suggestive of tuberculosis were observed, the deaths being due, in most cases, to nontuberculous pneumonia. Tubercle bacilli were present at death in the spleen or blood of all inoculated rats (twelve, i. e., four from each group), irrespective of the diet they had received: no tuberculous lesions were seen, although some rats were killed as late as the forty-second day after inoculation.

**High Altitude and Tuberculosis.**—The chief properties of the high altitude climate which are of value in the treatment of tuberculosis, Amrein says are: the low barometric pressure; the low temperature of the air; the dryness and purity of the air, and the large amount of sunshine. Fever in itself is no contraindication; but if permanent fever, beyond 101.5 F., with high pulse with more than 120 is present, the high altitudes ought to be excluded. Pleural effusions are absorbed well, but dry, obstinate pleural irritation may get worse owing to deep breathing. Also the dry catarrhs of the upper air passages, such as chronic rhinitis and pharyngitis atrophicans, may get worse. Laryngeal tuberculosis, generally regarded as a strict contraindication, till some years ago, may do very well, but it depends on the state of the lungs and on regular medical control and care.

**Dropped Shoulder Early Sign of Tuberculosis.**—Delmege says the presence of dropped shoulder is not diagnostic of the presence of pulmonary tuberculosis unless occupational and other causes can be excluded. The fact of its occurrence on one side is not an indication that the pulmonary tuberculosis is necessarily situated on that side. The importance of "subacromial flattening" is an associated sign in dropped shoulder of tuberculous origin.

## Bulletin Médical, Paris

Oct. 1 and 15, 1921, **35**, Nos. 40 and 42

*Epilepsy. M. Ducosté.—p. 781.
*Associated Diabetes. C. Achard.—p. 813.
Recent Publications on Therapeutics. G. Lyon.—p. 815.
Conservative Cesarean Section: Twenty Cases. Ciaudo.—p. 819.

**Epilepsy.**—Ducosté considers the *maladie épileptique* from the etiologic, psychiatric and medicolegal standpoints, and states that one solid conclusion may be drawn from his research on the families of 100 epileptics, namely, that epilepsy is not inheritable. Epilepsy is not even familial, he declares, the inevitable anatomic process of proliferation of neuroglia being probably acquired and accidental, possibly from the effects of birth trauma. Marie has recently asserted that the less civilized a people the larger the number of epileptics, because women are delivered clumsily and the children are badly taken care of. The effects of birth trauma, of infectious disease in childhood, of erection of the choroid plexus with hypertension of fluid—all these have been advanced recently as the causes of the characteristic proliferation of the subcortical neuroglia. The course of epilepsy is essentially progressive, he reiterates; 75 per cent. die before the age of 20. Sudden death in the course of sleep is not uncommon, but, he adds, the introduction of phenobarbital justifies the highest hopes as it certainly has a specific action on epilepsy. Although, administered alone, it is open to grave objections, this harmfulness can be overcome by giving it with other substances. It promises, administered properly, to modify the prognosis of epilepsy as that of neurosyphilis has been modified by the introduction of arsphenamin. In concluding his review of the medicolegal features of epilepsy, Ducosté remarks that there are no special asylums in France for epileptics; the insane epileptics are interned, but it is a problem what to do with them in their lucid intervals.

**Association of Diabetes with Other Diseases.**—Achard insists that the glycosuria does not reveal nor is it a measure of the nutritional disturbance which is the fundamental element of diabetes, namely, the incapacity to utilize glucose. A number of disorders generally regarded as complications of diabetes are in fact, he declares, merely the addition to other diseases of this incapacity to utilize glucose—an insufficiency of glycolysis. The same cause may induce this and excessive deposits of fat, for example. Bouchard found diabetes in one of every eight of the obese, and one obese in every five diabetics. Instead of speaking of nutritional dis-

ease, it would be more correct to speak of derangement of nutrition in the course of diseases. This is more than a simple question of wording; it offers suggestion for treatment. If we regard diabetes as a disease characterized by insufficient utilization of glucose in degrees capable of engendering glycosuria, this insufficiency will be the pivot for our therapeutics. Dieting will combat it but will not attack the cause. If, on the other hand, we regard diabetes as insufficiency of glycolysis occurring in the course of diverse diseases, that is to say, a secondary and symptomatic derangement, then while combating this nutritional derangement we will go beyond and behind it with our therapeutics, to act on the disease itself. Of course, he adds, the cause of the *maladie diabétogène* still escapes us, but with this conception of diabetes we will seek this cause with greater insistence than in the past. His list of *diabètes associés* is a long one. For example, diabetes or transient glycosuria figures in twelve of Hausemann's ninety-seven cases of acromegaly and in fourteen of Hinsdale's 130. It accompanied the adiposogenital syndrome in one of Achard's cases with a tendency to acromegaly; there was no glycosuria, but the respiratory test and induced hyperglycemia testified to insufficiency of glycolysis. On the other hand, it is rare with exophthalmic goiter, but may accompany an exaggerated growth of hair on the face of women. This "diabetes of bearded women" is extremely variable; in Weil and Plichet's case there was 100 gm. of sugar daily in the urine; in Tuffier's case it was easily reduced, dropping from 70 to 6 gm., or there may be merely transient glycosuria or an extremely variable glycolytic insufficiency.

## Bulletins de la Société Médicale des Hôpitaux, Paris

July 29, 1921, **45**, No. 27. First half indexed on page 1525

*Jacksonian Epilepsy with Diabetic Coma. F. Rathery, Cambessedès and Welti.—p. 1265.
*Plague Bacillus Acute Endocarditis. P. Teissier, P. Gastinel and J. Reilly.—p. 1268.
Staphylococcus Vaccine Therapy in Enteritis plus Furunculosis. H. Dufour and Debray.—p. 1275.
*Ditto in Recurring Bronchitis. H. Dufour and Ravina.—p. 1277.
*Obesity After Epidemic Encephalitis. H. Roger and G. Aymès.—p. 1278.
*Skin Tests for Sensitization. P. Le Noir, C. Richet, Jr., and Renard. —p. 1283.
*Paregoric Test for Cerebrospinal Fluid. R. Targowla.—p. 1287.
Rudimentary First Rib. G. Parturier and Aimard.—p. 1289.
*Antithyroid Treatment of Hemophilia. C. Oddo and C. Mattei.—p. 1292.
*Glycemia in Exophthalmic Goiter. P. A. Sainton, E. Schulmann and Justin-Besançon.—p. 1298.
*Quinin Test in Diagnosis of Exophthalmic Goiter. P. Sainton and E. Schulmann.—p. 1304.
*Transient Diabetes Following Mumps. M. Labbé and R. Debré.—p. 1306.
*Arsphenamin Treatment of Acute Chorea. Paulian E. Demetre.—p. 1309.

**Jacksonian Epilepsy in Diabetes.**—In the case related the diabetes was of a year's standing when the woman of 45 developed intense headache and vomiting; after two weeks, aphasia, and five days later jacksonian epilepsy; fatal coma followed, with right hemiplegia, and glycemia of 6.55. Naunyn has disputed the possibility of acidosic epilepsy, but Labbé and Guillain have reported cases recently.

**Acute Endocarditis from Plague.**—In one of the four fatal cases of bubonic plague at Paris in 1920, an acute mitral endocarditis with vegetations, the work of the plague bacillus, was found. The young woman died the sixth day from the first symptoms, which had been intense headache, epistaxis and vomiting.

**Vaccine Therapy in Bronchitis.**—The man of 35 was subject to recurring asthmatiform bronchitis, with emphysema; staphylococci predominated in the sputum. A vaccine was prepared from these staphylococci, and he was given four injections in two weeks. His condition was completely transformed, it is said; there is no further expectoration or shortness of breath, and he declares that he never felt so well. Whatever the final outcome may be, the benefit to date is most striking.

**Transient Obesity After Epidemic Encephalitis.**—Roger and Aymès discuss the mechanism by which two children and two adults in their experience gained about 5 or 7 kg. in weight as they were left with parkinsonian symptoms after epidemic encephalitis.

**Skin Test for Anaphylaxis.**—Le Noir, Richet and Renard describe five cases of sensitization to certain foods in which application of the substance in question to the skin induced the general anaphylaxis phenomena. This general reaction may be immediate or not until after an interval of from one to twenty-four hours. By repeatedly eliciting the skin reaction it may be possible to accomplish the desensitization. In any event this seems to be the best method for diagnosing the condition of anaphylaxis.

**Paregoric Test for the Spinal Fluid.**—Targowla states that paregoric contains benzoin, and hence it can be used instead of colloidal benzoin for testing the cerebrospinal fluid. The flocculation does not always parallel that with the benzoin test but, when positive, it has the same significance.

**Influence of the Thyroid on Hemorrhage.**—Oddo and Mattei report that acute thyroiditis developed on two occasions when sporadic hemophilia was being treated with antithyroid treatment. This arrested the multiple hemorrhages, but induced a very pronounced thyroid reaction. Thyroid treatment, on the other hand, aggravated the hemorrhagic tendency.

**Glycemia in Exophthalmic Goiter.**—Glycosuria or the complete picture of diabetes is noted in about 3 per cent. of the cases of exophthalmic goiter. Sainton and his co-workers, however, found the sugar content of the blood within normal range in fifteen cases of goiter, including several of the exophthalmic type. The rôle of syphilis in the production of exophthalmic goiter seems more and more evident, they say.

**Quinin Test for Exophthalmic Goiter.**—Sainton and Schulmann applied Bram's quinin test in ten cases of exophthalmic goiter and two controls. The findings failed to confirm Bram's statements.

**Diabetes After Mumps.**—In Labbé and Debré's case, severe mumps settled in the pancreas as well as in the parotids and testicles. Eighteen months after apparent complete recovery, 4 gm. of sugar was found per liter of urine, but this glycosuria subsided in a couple of months under dietetic measures, and the young man's health has been excellent since.

**Acute Chorea.**—Demetre relates that neo-arsphenamin by the vein every second or third day seemed to be responsible for the complete cure of the extremely severe acute chorea in his five cases. The patients were from 9 to 33 years old.

## Gynécologie et Obstétrique, Paris

September, 1921, **4**, No. 3

*Thyroid Function and Pregnancy. A. Fruhinsholz and J. Parisot.—p. 169.
*Hysterectomy in Acute Puerperal Infection. Potvin.—p. 207.
*Idem. G. Cotte.—p. 227.
Medical and Social Care for Prospective Mothers. Waegeli.—p. 243.
Idem. O. Doléris.—p. 263. Conc'n in No. 4.

**Anomalies of Thyroid Function During Pregnancy.**—Fruhinsholz and Parisot group certain scattered facts from experimental and clinical experience which throw light on the physiology of the thyroid. Their work was reviewed in the Paris Letter on page 1586. They state in conclusion that the excessive functional strain on the thyroid during a pregnancy may exhaust it beyond repair afterward. Women with much deranged thyroids are liable to have their children display a tendency to glandular anomalies, although of different glands. The effect of parathyroidectomy or thyroidectomy in gravid animals can scarcely be compared with clinical conditions, but the improvement or aggravation during a pregnancy of preexisting thyroid or parathyroid insufficiency paralleled that observed in women. Nearly five pages of bibliography are appended.

**Hysterectomy in Acute Puerperal Infection.**—Potvin's address was mentioned in the Paris Letter, page 1586. He denounces curetting the uterus when there is retention of placenta scraps, and he disapproves even of *curage digital*, saying that it is a blind procedure and asepsis cannot be counted on. He prefers forceps; in his twenty years of gynecologic practice he has relied on a 28 cm. long, slightly curved forceps, each blade a small spoon with rounded edges. After injection into the uterus under slight pressure of tincture of iodin or of turpentine (1 tablespoon to 1 liter of water), he introduces the forceps, closed, down to the fundus. When it is in contact with the wall, he opens the blades and

then closes them. If there is any scrap of placenta caught between them he feels it at once, and he twists the forceps gently, and the retained scrap is thus pinched off gently, as if with the fingers of a miniature hand. He proceeds to explore systematically in this way the entire inner surface of the uterus. Once convinced that the organ has been entirely emptied, he gently swabs the mucosa with a tampon dipped in pure turpentine, and leaves in the uterus a wick, impregnated with the same. Petrolatum in the vagina prevents smarting. He states that turpentine used in this way is free from toxic action while it has an almost elective action on streptococci. This treatment does not open up any new wounds; only the blood vessels connected with the retained scraps of placenta are opened, but there can be no absorption of septic products as the infected scraps have been removed. If these measures fail, he never repeats the procedure, or if conditions are too grave for any delay, hysterectomy is the logical treatment. When septicemia is once installed, hysterectomy will merely remove the portal of entry and superimpose traumatic shock on the clinical picture. Against the micro-organisms found in the blood, Pinard advises an antiserum morning and night, but Potvin has been more successful with colloidal metals. An autogenous vaccine might be tried, or subcutaneous injections of blood serum from convalescents as Delmas has recently recommended. The indications for hysterectomy are thus much the same as for amputation of a gangrenous limb.

**Hysterectomy in Acute Puerperal Infection.**—Cotte's address was also summarized in the Paris Letter on page 1586.

## Paris Médical

Oct. 1, 1921, **11**, No. 40

*Annual Review of Neurology. J. Camus.—p. 249.
*Labyrinth Variety of Epidemic Encephalitis. J. A. Barré and L. Reys.—p. 261.
*Herpes Zoster of Geniculate Ganglion. H. Roger and L. Reboul-Lachaud.—p. 264.
*Reeducation in Ataxic Aphasia. J. Froment.—p. 267.
*Hexamethylenamin in Epidemic Encephalitis. André-Thomas and H. Rendu.—p. 273.
*Spinal Puncture in Syphilis. A. Sézary.—p. 276.
*Radiotherapy in Syringomyelia. J. Lhermitte.—p. 281.

**Neurology in 1921.**—Camus remarks that epidemic encephalitis and its sequels have focused the attention of neurologists the last year, and, next to this, the nervous system of organic life. The latter has been studied by physicians of all countries and from new points of view, as he describes in detail, with the biologic tests. A few facts have thus been established and a number of theories advanced which lack confirmation as yet. The instructive oculocardiac and pilomotor reflexes and the affinity of certain parts and of these only to certain chemical substances, endogenous or exogenous, are facts of the highest importance. He reminds the research worker not to forget that the functional condition of the organ at the moment, the condition of the nerve centers, emptiness or distention of an organ, whether it is secreting or quiescent, etc., modify the response to the same chemical substance at different times. In concluding his eleven page review, he refers to the important influence of emotions on the organic life. In examining candidates for aviation he found that the most instructive data were those obtained from the intensity, duration, etc., of the vasomotor, cardiac and respiratory reactions to induced emotions.

**The Labyrinth Form of Epidemic Encephalitis.**—Barré and Reys write from Strasbourg that in twelve of their 100 cases of epidemic encephalitis, the first and long the only symptoms were attacks of vertigo, with weakness and general malaise and occasional nausea. These symptoms subsided under rest and quiet, but the vertigo returned more intense than ever when the subject ventured on the crowded street. There may be complicating parkinsonian symptoms, and unless one thinks of the prevailing epidemic encephalitis, the diagnosis is liable to go far astray. They found quinin often useful in doses not over 5 or 10 cg., two or three times a day, apart from meals. The dizziness, staggering and nausea generally disappeared thereafter. Bromid with sodium iodid or potassium iodid also seemed to shorten the course of these labyrinth disturbances, but several still continue to have their attacks although milder and less frequent. Among the other drugs tried was scopolamin which seemed useful.

**Geniculate Ganglion Syndrome.**—The virus of herpes zoster may affect the geniculate ganglion and induce pain and an eruption in the ear, with the general symptoms of herpes zoster, facial paralysis and transient disturbance in hearing on that side.

**Reeducation in Cases of Ataxic Aphasia.**—Froment describes the principles, the procedures and the results of training in cases of motor aphasia. He emphasizes that there is no necessity for training the muscles, etc. Their function is not lost, and it will be regained when the attention is diverted so as to give them a chance for automatic coordinated action. The aim should be to evoke the memory of the combinations of sounds which characterize words. The trouble in aphasia is less the loss of part of the capital of words than it is the inability to use what still remains. This mental deficit is not very pronounced, but it determines the prognosis. By estimating it before attempting the reeducation, we get an idea of the probabilities of success. The aphasic patient has to be taught entirely different from the child; he has neither the memory nor the attention to profit by abstract ideas. The teaching exercises may have to be kept up for a year or more. In addition to those given by the physician, some member of the family or other dependable and patient person should carry them on daily. The methods, difficulties and results are like those obtained in training the mentally backward.

**Hexamethylenamin in Epidemic Encephalitis.**—Thomas and Rendu report the case of a previously healthy woman of 43 who suddenly developed epileptiform seizures at night, growing constantly worse, until the fourth night they were almost continuous. Then, after injection of 0.5 gm. hexamethylenamin by the vein, there were no further convulsions. The temperature which had reached 40.2 C. soon returned to normal, and the woman gradually regained consciousness. The diagnosis of epidemic encephalitis was confirmed by the further course and recovery. The drug was kept up for some time. The only trace of the disease now, four months later, is a slight hesitancy in speech. This almost instantaneous and complete arrest of the convulsions after the intravenous injection suggests the possibility of colloidoclasis as the explanation, all conditions happening to favor it at the moment.

**Lumbar Puncture in Syphilitics.**—Sézary advocates lumbar puncture as a routine procedure on two occasions. The first is after the vigorous starting course, when we are planning to drop to milder medication, and the second is when we are planning to suspend all treatment. The lumbar punctures will confirm our decision or cause us to change it.

**Radiotherapy in Syringomyelia.**—Lhermitte emphasizes that there is never any trace of a neoplasm in these cavities in the spinal cord traceable to hydromyelia, softening and necrosis, or a hemorrhagic focus. But there is one variety of syringomyelia with proliferation of neuroglia around and remote from the cavity. This gliomatous syringomyelia seems to be amenable to the roentgen rays, and his experience with this has been very favorable. The subjective symptoms subside first, and the use of hands and legs becomes easier. Muscular atrophy, being the result of actual destruction of gray matter, is not modified except that its progress may be arrested. Bone and joint disturbances, however, may retrogress; in a recent case a perforating ulcer on a finger rapidly improved under the radiotherapy. Improvement was also realized in genital and bladder disturbances from this cause. The radiotherapy induces actual retrogression of the lesions to a certain extent, not mere remissions in the course. This was confirmed anew at necropsy recently in a case treated in this way in 1914; the cavity that had been treated had scarcely any trace left of gliomatosis while it was pronounced in the nontreated regions. Unfortunately there are no means of differentiating the form of syringomyelia in a given case except possibly by the success or failure of the radiotherapy. The vertebrae are usually more or less rarefied, so that the roentgen rays traverse them more readily. He makes an exposure from each side, 4 H units of 8 or 9 B penetrating power, with a 4 to 6 mm. filter, and repeats weekly.

## Presse Médicale, Paris

Oct. 12, 1921, **29**, No. 82

*Suprarenal Insufficiency. E. Sergent.—p. 813.

**Suprarenal Insufficiency.**—Sergent emphasizes that when symptoms indicating suprarenal insufficiency appear, it means the loss of the whole of the suprarenal, not merely a deficit in epinephrin alone. The physiologists and the pathologists are agreed on one point, namely, that the suprarenals are vitally indispensable organs, but they differ as to the reason for this. The suprarenal medulla produces epinephrin, but cholesterin seems to be a product of the suprarenal cortex, and there is much to sustain the assumption that it is the cortex that is vitally indispensable. The recent research on the low cholesterin content of the blood in infectious diseases is very suggestive of a new function of the suprarenals. In certain experimental conditions the cholesterin content of the blood in the suprarenals is increased. Sergent has been treating two patients with Addison's disease with subcutaneous injections of extract of the whole suprarenal gland and cholesterin in oil. The cholesterin content of their blood had been 0.9 and 1.1 before this treatment but after ten injections of each series, on alternate days, the cholesterin content was 1.2 and 1.7, and the asthenia had been notably reduced. These results he regards as quite encouraging, attracting attention to cholesterin from the point of view of the suprarenals.

Oct. 15, 1921, **29**, No. 83

*The Pilomotor Reflex. André-Thomas.—p. 821.
*The Prognosis in Ileus. A. C. Guillaume.—p. 822.
Examination of Eye in Light without Red Rays. Cantonnet.—p. 825.
Vitamins and Rachitis. M. Nathan.—p. 826.

Oct. 19, 1921, **29**, No. 84

Experimental Research on Eutrophic Action of Fresh Foods. G. Mouriquand.—p. 833.

**The Pilomotor Reflex.**—Thomas discusses the behavior of the pilomotor muscle deprived of its innervation, pointing out the antagonism between the local reaction and the reflex.

**Prognosis in Acute Ileus.**—Guillaume has compiled 587 cases of acute ileus given operative treatment by different methods, during the last ten years, and states that 224 died within the first forty-eight hours. The total mortality by the end of the second week was 50 per cent. In the total 3,829 cases compiled in the last thirty years the mortality was 63.2 per cent. In 171 operative cases of strangulated hernia, the mortality was only 29 per cent. He ascribes this difference in the outcome mainly to the fact that strangulated hernia gets operative relief sooner than the ileus. His charts show the rapid rise in the death rate as the days pass after the first symptoms.

## Progrès Médical, Paris

Sept. 3, 1921, **36**, No. 36

*Bismuth in Treatment of Gastric Ulcer. L. Rabinovici.—p. 415.
Anatomy of Uterus. Demelin.—p. 416.
*Diagnosis of Fracture of Neck of Femur. Delbet.—p. 419.
*Orthopedic Treatment of Fractures. H. Judet.—p. 421.

Sept. 10, 1921, **36**, No. 37

Cholesterin and Fat in Cancer Serum. M. Loeper et al.—p. 425.
Pathogenesis of Traumatic Shock. G. Jeanneney.—p. 425.
Medicine in Brillat-Savarin. Armand.—p. 433.

**Bismuth in Treatment of Gastric Ulcer.**—Rabinovici explains why some ulcers are refractory to bismuth while others heal under it. Large doses sometimes fail when a smaller amount associated with an alkali proves effectual. The site of the ulcer determines whether it will be coated with the bismuth or escape most of its action, as the bismuth accumulates at the lowest points. For this reason, reclining with the pelvis raised may be the only means to obtain relief after taking the bismuth.

**Differential Diagnosis of Fracture of Neck of Femur.**—Delbet emphasizes the difference in the outcome according as the fracture is in the neck itself, or close to or involving the trochanter. The subtrochanter fracture slants in a different direction, and traction from the muscles pulls the upper stump into a deforming position. The neck-trochanter fracture, on the other hand, is often bifurcated, and the fragments are not movable. This form of fracture heals smoothly and regularly, with a good callus, whatever the age. Fracture of the neck proper never heals regularly, and always entails pseudarthrosis when treated by immobilization alone. This form shortens the limb, but it can be walked on for a time without much inconvenience. The stout capsule holds the parts in place at first. As this stretches, the lower stump works up, and the primary shortening of 1 or 2 cm. increases to 6 or 7 in ten days or up to six months. With fracture of the neck, there is outward rotation; with dislocation of the hip joint, there is always inward rotation. With fracture of the true neck, pulling on the leg lengthens it, but when the traction is released, there is a sound of snapping or sensation of rubbing. This does not occur with the cervicotrochanter fracture, as the fragments interlock. He reiterates that the fractured neck has to be strengthened by driving in a peg or long screw, or the equivalent of this, to ward off the otherwise inevitable pseudarthrosis.

**Fracture of Neck of Femur.**—Judet gives an illustrated description of a method of ensuring regular consolidation with fracture of the true neck without the necessity of an artificial support. He accomplishes this by reducing the fracture as a congenital dislocation of the hip joint is reduced: flexing the thigh to 90 degrees and then extreme abduction. This brings the fragments into coaptation, and a large plaster cast holds them in this position for forty-five or fifty days. The cast is applied in the sitting position. With a supracondyle fracture of the femur, the cast is applied to hold the leg permanently in the position in which reduction was realized under general anesthesia. The leg is flexed to the utmost. Traction is exerted at a right angle to the recumbent body by a skein of yarn passed through the popliteal space while the assistant holds the foot in equinus position, as close to the buttocks as possible. The physician has thus both hands free to reduce the fracture, and a plaster cast is applied to hold the limb in this extreme flexion of the knee. Judet applies this same orthopedic principle in treatment of fracture of the patella. He first punctures and aspirates the blood and secretions two or three days after the accident, and then applies Malgaigne's hooks after local anesthesia at each point where they are to be inserted. The patella heals with this immobilization from without as perfectly as with a wire suture, etc.

## Schweizerische medizinische Wochenschrift, Basel

Oct. 13, 1921, **51**, No. 41

*Idiosyncrasies. R. Doerr.—p. 937.
Tests of the Swiss Gas Mask. F. Rohrer.—p. 943.
Case of Taboparalysis. M. Tramer.—p. 948.

**Idiosyncrasies.**—Doerr explains that idiosyncrasies are not merely interesting curiosities but objects for fruitful research, experimental investigation, and for causal treatment. They obey Mendel's laws in heredity, and they evidently depend on the chemical constitution, and they are not specific for the species. There are two classes of bodies that induce an idiosyncrasy, those in which only the intact molecule acts, and those in which only a certain grouping of atoms is responsible. He urges study of the heredity of idiosyncrasies as liable to throw light on many problems. Anaphylaxis, on the other hand, he says, is never inherited; at most, the antibodies may pass to the fetus but they disappear not long after birth. He reviews recent American and other literature on hypersensitiveness, and declares that the cellular theory of anaphylaxis is enlarging the horizon. The antibodies are held in the cells, and the antigen induces the reaction by its intense irritation of the antibody-holding cell. It is not the reaction between the antigen and the antibody that kills the animal directly, but the special cells in which it happens to occur. In the guinea-pig, this may be in the bronchial muscle, and this entails death from suffocation. On mixing the antigen and antibody in the test tube, there is always the same flocculation of protein, and this physical change may be what induces the irritation of the cell.

## Pediatria, Naples

Oct. 1, 1921, **29**, No. 19

*Serum Prophylaxis of Measles. S. Maggiore.—p. 873.
*Elimination of Tartar Emetic in Leishmaniasis. M. Mallardi.—p. 878.
Experiences with Isolated Vitamins. Sandro Tronconi.—p. 886.
*Banti's Disease in Children. A. F. Canelli.—p. 897. Cont'n.

**Convalescents' Serum in Prophylaxis of Measles.**—Maggiore recalls the success of the Palermo children's clinic with injection of scales or serum in prevention of scarlet fever, varicella and measles. It has put an end to epidemics of these diseases in the institution, as Rutelli published in 1916, and Di Cristina in 1919. [His success with prophylactic vaccination against scarlet fever was described in these columns, Sept. 30, 1916, p. 1049, and March 1, 1919, p. 687. He used for this the desquamated scales.] The research with convalescents' serum for what Maggiore calls the immunoprophylaxis of measles was begun in 1915. The serum was drawn about the tenth day after defervescence, and after addition of 0.5 per cent. of phenol, 2 c.c. was injected subcutaneously. After waiting a day, twice this dose was injected. This proved effectual to prevent the spread of the measles when a case developed in the institution except in cases with very prolonged incubation, and even then, the disease seemed to be attenuated. Convalescents' serum prepared in this way kept active for several months. With this technic, he relates, several hundred children of all ages have been immunized, and there has never been a mishap. The results have always been highly satisfactory, and have allowed the admission of children to the clinic without fear of contagion. The measles cases have been sporadic and mild, and there has been no death from hospital contagion. As measles suspends the tuberculin reaction, the history of the convalescent has to be taken into account in excluding the possibility of tuberculosis, although the fear of transmission of tuberculosis through the serum seems unwarranted, he says, according to our present knowledge. This same method has been successfully tried recently, he adds, by Degkwitz and Pfaundler, but they give only a single injection, with a larger dose, according to the period of incubation, and they make the injection in a muscle. This dose of 3 or 4 c.c. or more they regard as necessary for protection. Their experience has confirmed the excellence of the method, Maggiore continues, saying that this immunoprophylaxis should be applied to the healthy in institutions, colleges, schools, hospitals, etc., in case of serious epidemics. [The Berlin Letter, page 1509, relates the recent experiences with it in Germany. They were also reviewed in these columns, Oct. 1, 1921, p. 1144, and elsewhere.]

**The Antimony Metabolism in Internal Leishmaniasis.**—Mallardi tabulates the metabolic findings in four children being treated with antimony and potassium tartrate. They indicate a tendency to cumulative action.

**Banti's Disease in Young Children.**—Canelli reports a case of diffuse fibrous degeneration of the spleen, of the Banti type, in an infant over 14 months old with subacute interstitial hepatitis, chronic enteritis with atrophy of the walls, and an active tuberculous process in the tubes and ovaries. The child had been born at term but had become much debilitated by early and persisting enteritis. He compares with this case the literature on Banti's disease in children.

## Policlinico, Rome

Oct. 3, 1921, **28,** No. 40

Polymorphism of Syphilis Spirochete. P. Pediconi.—p. 1323.
*Arsenicals in Treatment of Spastic Conditions. C. Porru.—p. 1326.
*Present Status of Uremia. G. Aiello.—p. 1329.

**The Arsenicals in Spastic Conditions.**—The outcome was disappointing in Porru's experience with paralysis agitans, parkinsonian symptoms after epidemic encephalitis, and spastic paraplegia.

**Urea and Residual Nitrogen in the Blood in Kidney Disease.**—Aiello's conclusion from his study of recent literature is that the residual nitrogen is a better index of kidney functioning than the urea. Also that extrarenal factors, such as the toxic destruction of albumin, probably cooperate in the uremia.

Oct. 10, 1921, **28,** No. 41

*Enrichment of Diphtheria Bacilli. M. Pergola.—p. 1355.
*Myasthenia Gravis. P. F. Zuccòla.—p. 1358.
*Suture of Portal Vein. G. Giorgi.—p. 1361.

Oct. 17, 1921, **28,** No. 42

Sodium Methylate in Skin and Venereal Disease. P. A. Meineri.—p. 1391.
Torsion of Testis in Infant. G. Matronola.—p. 1392.
Present Status of Juvenile Deforming Osteochondritis. A. Chiasserini. p. 1394.

**Bacteriologic Diagnosis of Diphtheria.**—Pergola describes what he calls a new method by enrichment which checks development of other bacteria while providing exceptionally favorable conditions for proliferation of diphtheria bacilli and for their recognition. He gives several formulas for fluid and solid culture mediums preferring the following: 100 c.c. of normal blood serum (beef, horse, guinea-pig, etc.); 0.02 gm. potassium tellurite, and one egg yolk. After thorough mixing by agitating, the fluid is sterilized by heating in the water bath to 50 or 55 C. for half an hour on three consecutive days. For the solid medium, only 50 c.c. of serum is used, with 50 c.c. of ordinary agar at 2.5 or 3 per cent., the other ingredients the same as in the first formula. They are added to the melted agar and the mixture is cooled on plates. Both the plate and the fluid medium are inoculated with some of the suspected material, and a plate is inoculated from the latter if the first inoculation is negative. They are all kept at 37 C. After twelve or fifteen hours the effect of the enrichment becomes manifest and grows more and more pronounced. He claims a number of advantages for this tellurite method.

**Myasthenia Gravis.**—A boy of 7 developed headache, vomiting, strabismus and weakness of muscles. The myasthenia in two months was so extreme he could not hold up his head, as it drooped until his chin touched his sternum. It was the second case of the kind in the neighborhood during a small epidemic of poliomyelitis. The other case terminated fatally, with bulbar symptoms, and pneumonia from aspiration. The condition in the boy has persisted stationary to date, with slight ups and downs. The onset had resembled that of poliomyelitis.

**Suture of the Portal Vein.**—Giorgi was able to suture the vein promptly after the revolver wound, and there was no further disturbance from this cause. Necropsy five months later showed that the vein had been perfectly repaired without any impairment of its permeability. This had been realized with the ordinary instruments.

## Semana Médica, Buenos Aires

Sept. 1, 1921, **28,** No. 35

*A Seashore Sanatorium for Children. J. M. Jorge.—p. 257.
*Diagnosis of Renal Tuberculosis. J. Salleras Pagés.—p. 296.
*Intracardiac Injection of Epinephrin. Bermann.—p. 300.

**Model Sanatorium.**—Jorge devotes forty pages and twenty-one illustrations to the seashore sanatorium and solarium at Mar del Plata. From 200 to 230 tuberculosis children are given treatment there during the year, besides its "vacation colony" for numerous others who seem to be candidates for tuberculosis. The aim is a complete and durable cure, and the child is kept until this is realized. Pulmonary and renal tuberculosis cannot stand the seashore, and the condition grows worse from the very first. The reaction that follows games and exercises at first is recorded for each child, and none are allowed to reach the point of fatigue.

**Early Diagnosis of Renal Tuberculosis.**—Salleras catheterizes both ureters when slight and capricious hematuria, with some discomfort in the lumbar region, frequent micturition, pyuria, and slight loss of weight suggest tuberculosis of the kidney alone. He also draws the urine from the bladder separately, at the same time. By this means he discovered a supernumerary kidney in one case, the bladder urine differing from both the ureter catheters urine. The urine obtained in the first ten minutes is kept separate from the rest to examine for albumin, as the traumatism from the catheterization may bring blood after the first ten minutes. In inoculating a guinea-pig to detect tubercle bacilli in the urine, a preliminary exposure of the region to roentgen rays hastens the development of the tuberculous lesion in the glands. After drawing the second sample of ureter urine, between the tenth and thirtieth minutes, fresh vials are applied and the output for another thirty minutes after drinking 600 or 800 gm. of water is measured, and the amount compared with the amount of the preceding thirty minutes. Then a fourth and a fifth sample are drawn for comparison. At the end of the two hours the catheters are withdrawn after instilling through them a 1 per cent. solution of silver nitrate. Comparison of the urea in the different samples during the

induced polyuria may also be instructive. He does not regard the methylene blue and similar color tests as dependable, or else they are too complicated for practical use; urea, water and the chlorids are the important elements, from the retention point of view. He discusses further the diagnosis with bladder lesions of different kinds.

**Intracardiac Injection of Epinephrin.**—Bermann summarizes the experiences in this line reported by Guthmann, Frenzel and Vogt, all of which were summarized in THE JOURNAL at the time.

Sept. 8, 1921, **28**, No. 36

The Work of Rudolph Kraus. G. Aráoz Alfaro.—p. 305.
Clinical Forms of Influenza. N. D. Rosso and R. Denis.—p. 308.
What Are Vitamins? J. A. Dominguez.—p. 320.
*Rupture of Uterus at Term. I. Peña.—p. 325.
*Puerperal Infection. T. J. González.—p. 328.
*Spirochetal Bronchitis. G. Segura and L. Puccio.—p 332

**Rupture of Uterus at Term.**—Only one of the woman's three childbirths had been normal, delivery in the others having been difficult, but the three children are healthy. After twenty-four hours of ineffectual labor, the uterus ruptured in the lower left segment. The fetus could be palpated in the abdominal cavity. The woman was unconscious from the severe shock, and the fetus and placenta were delivered by hand. She was then left in complete repose, in a slanting position, no tampon, no drain, merely an ice bag to the abdomen plus rectal drip. She gradually recuperated from the severe shock of the rupture and the anemia under heart tonics and on a milk diet. The fifty-first day the tubes were ligated through the vagina to prevent further conception. In another case the rupture occurred while the woman was under the complete influence of an anesthetic, and there was no shock, no hemorrhage; the pulse kept good, and the mucous membranes did not blanch. The rupture was in the lower segment, at the site of the placenta praevia. He warns that in these rupture cases the placenta must be left unmolested until after the extraction of the fetus. In his first case there was no reaction on the part of the peritoneum.

**Puerperal Infection.**—In the course of this general review, González says that with retention after abortion he merely applies ice to the abdomen; gives 0.2 gm. of quinin every four hours, and disinfects the vulva. The fever declines in a few days and the retained scraps are completely expelled.

**Bronchial Spirochetosis.**—Castellani's spirochete was cultivated from the sputum of the previously healthy man of 33 who developed sudden pain and cough with bloody sputum; no fever, no headache. The pains, etc., kept up for two months but the appetite was good throughout. The blood in the sputum was a dirty red. The man was an Arab, but he had lived in Argentina for fifteen years, and the cure was complete under a course of neo-arsphenamin.

## Archiv für klinische Chirurgie, Berlin

Sept. 17, 1921, **116**, No. 4

*Principles for Postoperative Irradiation. O. Jüngling.—p. 557.
*The Colon Bacillus and Coral Kidney Stone. H. Cyranka.—p. 567.
*Abdominal Pain: Auto-Observation. F. Brüning.—p. 598
*Retrogression of Lower Ribs. R. Klapp.—p. 608.
Pathologic Constitutions and Surgery. E. Payr.—p. 614.
*Prostatitis After Cystostomy. H. Alapy.—p. 642.
*Surgical Treatment of Exophthalmic Goiter. P. Sudeck.—p. 648
*Looser's Disintegration Zones. A. Fromme.—p. 664.
*Habitual Dislocation of Lower Jaw. G. E. Konjetzny.—p. 681.
*Surgical Treatment of Encephalitis. Tilmann.—p. 693.
Direct Vein-to-Vein Transfusion of Blood. F. Oehlecker.—p. 705.
*Ligation of Veins with Thrombophlebitic Pyemia. M. Martens.—p. 720.
Experimental Research on Drainage of Wounds with Dry and Moist Dressings. L. Schönbauer and R. Demel.—p. 731

**Postoperative Irradiation.**—Jüngling concludes from the experiences he cites from various clinics that postoperative exposure to the roentgen rays is still in a tentative stage, and that the theoretical assumptions on which it is based are of dubious value. In cases of cancer that have proved refractory to the rays before the operation, there does not seem to be much promise of benefit from their postoperative application. At some of the six clinics cited, three years have elapsed without recurrence in 38.7 per cent. of the nonirradiated cases and in 37.7 per cent. in the irradiated (Marburg); in 38.5 and 30.5 (Tübingen); in 32.7 and 47.50 (Rostock), and in 46.6 and 62.5 (Kiel). The amount of the rays which seems to destroy the manifest cancer growth cells does not seem to be capable of destroying the latent cancer cells. It is possible, he suggests, that quiescent cancer cells are not susceptible to the action of the rays.

**The Colon Bacillus and Kidney Stones.**—Cyranka expatiates on the calculus-inducing properties of the colon bacillus. In his research, even slight changes in the colloids sufficed to induce production of concretions in urine in the presence of colon bacilli. The congestion and compression in menstruation and pregnancy undoubtedly enhance the virulence of the colon bacilli and induce conditions favoring their passage into the urinary apparatus. In his thirty recent kidney calculus cases with suppuration, 93.3 per cent. were in women. He gives the details of each, tracing the course from the harmless bacteriuria to the gravest empyema cases. The infection of the stagnating urine in the kidney pelvis causes a precipitation of colloids and crystalloids, the same as in the biliary apparatus and in the salivary glands.

**Abdominal Pain.**—Brüning's analysis of his own sensations under varying conditions has demonstrated that the pain in abdominal organs innervated by the sympathetic is localized in the great ganglia connected with them, not in the organ itself. Abdominal pain at points elsewhere than in the ganglia always indicates participation of the parietal peritoneum. The pain around the umbilicus at the onset of acute appendicitis is caused by contraction of the musculature of the appendix or cecum.

**Anomalies in the Lower Ribs.**—Klapp ascribes to man's erect attitude the anomalies and retrogression of the lower ribs, as he explains.

**Prostatitis After Cystostomy.**—Alapy states that in his seventy-three cases of enlarged prostate treated by diversion of the urine through an incision into the bladder, over 25 per cent. of the men suffered severe pain at each micturition and also at defecation and passage of flatus. The explanation is the relics of inflammation in and around the prostate, soldering it firm in its bed and rendering its enucleation very difficult. The cystostomy, therefore, does not always ward off the necessity for prostatectomy. About 25 per cent. will have to be operated on later on account of these recurring and often distressing pains.

**Surgical Treatment of Exophthalmic Goiter.**—Sudeck has operated in 280 cases, with 16 deaths, that is, in 5.3 per cent. In the same period, 9 patients died without any intervention having been attempted. There were 262 cases of hyperthyroidism, with 0.7 per cent. mortality. The final outcome in all this material demonstrates that exophthalmic goiter is constantly cured when the toxic action from the thyroid can be effectually checked, as by a thorough thyroidectomy. As the hyperthyroidism is cured by this, the exophthalmic goiter is cured with it. Partial operations give inconstant results.

**Disintegration Zones.**—Fromme refers to what Looser calls *umbauzonen*, meaning thereby a small area in a bone where there seems to be occurring a process of disintegration. He regards these *umbau* zones as a factor in the development of loose bodies in joints and of supposed supernumerary bones.

**Habitual Dislocation of Lower Jaw.**—Konjetzny corrects the tendency to recurring dislocation by providing a permanent buffer in front of the joint which prevents the abnormal play of the head of the bone. He utilizes the interarticular fibrocartilage for the purpose, severing the meniscus above, drawing it down and suturing it to hold the parts of the joint in place. He gives illustrations of the procedure as he has successfully applied it in three cases.

**Surgical Treatment of Encephalitis.**—Tilmann urges to operate promptly even in acute encephalitis when it is causing severe symptoms.—Among some typical cases described are three in which the disturbances were evidently from the inflammatory process itself. In the others the reparative process following the inflammation was responsible for the epilepsy or other disturbances.

**Ligation in Thrombophlebitic Pyemia.**—Martens regards the ligation of the vein as not only justified but as directly indicated. Only, he adds, we must operate early, and we must not attempt more than just to ligate, especially when abdominal veins are involved. The results of ligation have

not always been encouraging, but without intervention the death rate is high. Veit saved 6 in 20 puerperal cases; Latzko 10 in 28, and Martens, himself, 7 of his 11 patients in this category. There was metastasis in the others which proved fatal. No injury from the ligation was observed, and in the 2 most favorable cases the chills stopped abruptly after the ligation.

## Deutsche medizinische Wochenschrift, Berlin

Sept. 8, 1921, **47**, No. 36

Inactivity as Factor in Muscular Atrophy Following Division of Nerve. A. Lipschütz and A. Audova.—p. 1051.
First Signs of Mediastinal Growths. P. Hampeln.—p. 1052.
Abortive Cases of Epidemic Encephalitis. A. Wallgren.—p. 1053.
Tuberculosis in Relation to the Peripheral Vascular System. G. Liebermeister.—p. 1054.
Method for Staining Treponema Pallidum. F. Ruppert.—p. 1054.
Significance of Abdominal Sensations. D. Kulenkampff.—p. 1056.
Fatal Hemorrhage After Swallowing False Teeth. A. Plaut.—p. 1058.
The Gruber-Widal Reaction in Cholelithiasis and Pyelitis. R. Korbsch.—p. 1059.
Uterine Hernia in Ruptured Cesarean Incision Scar. M. Ichenhäuser.—p. 1060.
Treatment of Incontinence of Urine. W. Forst.—p. 1060.
Two Cases of Staphylococcus Sepsis. H. Landau.—p. 1061.
Effect of Quartz Lamp on Metabolism. W. Lasch.—p. 1063.
*Frequency of Hutchinson Teeth in Congenital Syphilis. H. Davidsohn and E. Davidsohn.—p. 1064.
Intravenous Use of Calcium Chlorid. H. Beumer.—p. 1065.
Tuberculin Skin Reaction in Relation to Local Milk Hygiene. G. Stern and W. Schultz.—p. 1066.
Apex of Lung in Pleuritis and Pneumonia. F. Koester.—p. 1066.
Simultaneous Infection with Syphilis and Gonorrhea. L. Zippert and F. Stern.—p. 1067.
Surgical Diphtheria in Country Practice. R. Spiegelberg.—p. 1068.
Poisoning with Arsenic Tooth Paste Applied by Dentist. G. Neugebauer.—p. 1069.
Indications for Use of Forceps. L. Blumreich.—p. 1070.
History of Familial Infundibular Thorax. E. Ebstein.—p. 1070.

**Frequency of Hutchinson Teeth in Congenital Syphilis.**—In fifty cases of congenital syphilis in children more than 6 years old, Davidsohn and Davidsohn found Hutchinson teeth in twenty-four, or 48 per cent., which constitutes, they think, good evidence of the diagnostic value of the phenomenon.

## Deutsche Zeitschrift für Chirurgie, Leipzig

September, 1921, **166**, No. 1-4. Barth Festschrift

*The Danzig Hospital. A. Schmidt.—p. 1.
*Ernst von Bergmann as Army Surgeon. R. Lampe.—p. 10.
*Detubation and Hypoglottic Laryngitis. A. Schulz.—p. 38.
*Acquired Thyroid Insufficiency. Rodenacker.—p. 44.
*Surgery of the Thorax. Vorderbrügge.—p. 49.
*Abscess in the Brain. Linck.—p. 65.
*Return of Symptoms After Gallstone Operations. E. Liek.—p. 106.
Pathologic Conditions in Metatarsophalangeal Joints. Idem.—p. 126.
*Nature and Treatment of Exophthalmic Goiter. Idem.—p. 144.
*Treatment of Myomas and Metropathies. Senge.—p. 231.
Surgery of Gastric and Duodenal Ulcers. C. Methling.—p. 237.
*Surgical Treatment of Duodenal Ulcers. A. Schmidt.—p. 242.
*Treatment of Fracture of Base of Skull. Kulcke.—p. 274.

**Barth Festschrift.**—This number of the *Zeitschrift* is dedicated to Prof. A. Barth on the twenty-fifth anniversary of his assuming charge of the surgical department of the Danzig hospital. The first article is devoted to the hospital, and the second to a review of Bergmann's surgical work as the introducer of the conservative treatment of war wounds.

**Tracheotomy and Hypoglottic Laryngitis.**—Schulz describes a case in which a supposed tumor in the larynx compelled tracheotomy, but the mass in the larynx proved to be a chronic inflammatory thickening of the mucosa below the vocal cords. It was cauterized through the tracheotomy opening with the actual cautery, and in ten days the patient could breathe through the natural passages. In another two weeks the tracheotomy tube could be discarded. Two years later the voice and respiration were found still normal, the tracheotomy wound well healed, and the mucosa showing no trace of the preceding disturbance. The general condition was not good on account of the preexisting and persisting cystitis. The diagnosis in this case had been possible only with direct bronchoscopy under general anesthesia, and this should never be omitted if other means for differentiation fail. In Zimmermann's case, however, the bronchoscope aggravated conditions so that tracheotomy became necessary while the condition before had been bearable. Possibly laryngoscopy with the head pendent might be preferable. In Zimmermann's compilation of 36 cases, the hypoglottic swelling subsided without the necessity for tracheotomy in all but 2; 23 in the group were children. It is more than probable, Schulz adds, that in certain cases this condition is responsible for the difficulty in detubation after diphtheria. When low tracheotomy is substituted for the high, the rapid subsidence of the swelling in the hypoglottic space testifies that it had been caused or maintained by the irritation from the tube. The laryngoscope can be used through the tracheotomy opening, but direct bronchoscopic inspection proved ample and decisive in his cases.

**Acquired Myxidiocy.**—Rodenacker emphasizes that the main progress of late in our knowledge of the ductless glands is the recognition of the fact that not one gland but the whole endocrine system is deranged when one gland shows signs of disturbance. In a case described, a boy of 6 presented the cretin aspect and was 4 cm. too short for his age. His vocabulary was limited to five or ten words. He had been a strong and lusty infant but at the age of 6 months had an accidental severe gastro-intestinal derangement, and this seemed to check development in every way. The family history also seemed to indicate a weakness of the entire endocrine system. For these and other reasons Rodenacker did not restrict treatment to thyroid extract alone, but gave suprarenal substance with it. The outcome surpassed all anticipations. In three months the boy had grown 10 cm., and two years after beginning the treatment he had learned to read and write. In mathematics alone he has made no progress. It is evident that no benefit need be anticipated from grafting a single gland or from treatment with a single glandular extract: We must plan to combine several glands according to the age of the subject. We must also have it understood that the deficiency in the glandular functioning will probably entail the necessity for treatment along this line all through life.

**Surgery of the Thorax.**—Vorderbrügge reviews some of the Danzig experiences in this line, including two cases of recovery after traumatic hernia of the lung.

**Abscess in the Brain.**—Linck concludes from the experiences related that there is no essential difference in the course or findings between a traumatic abscess in the brain and a pure inflammatory abscess consecutive to ear disease. In two of four cases described the abscess induced only general symptoms, headache and the pressure pulse, but the preexisting right otitis media gave the clue along with the lack of cerebellar symptoms. The abscess was in the right temporal lobe in one case, and the return of symptoms later with choked disk indicated a second abscess which was found in the occipital lobe. The diagnosis each time had been made by puncture, after several negative punctures with the second abscess. In another case there were no general symptoms indicating an abscess after the trauma of the skull, but the roentgen rays revealed the abscess in the frontal brain as a little air had got into the cavity. The outcome with a brain abscess depends on whether the system is capable of walling in the abscess with an encapsulating barrier or whether it is in a bed of necrotic brain tissue. On direct inspection with the forehead light and speculum, the color of the abscess wall is more yellowish in the latter contingency, and the walls of the abscess crowd together more. In some cases—and these were always the ones with a fatal termination—the walls crowded together so that it was impossible to get a view of the abscess cavity, even when the patient was raised to a sitting position and told to breathe deep and hold his breath. It was possible in three of the four cases described to estimate from the cerebrospinal fluid and the bacteria in the pus that the infection and inflammation were not spreading. In the other case, the increasing turgor in the brain, the appearance of leukocytes in the previously clear fluid, and the choked disk testified to the lack of encapsulation, confirmed by necropsy. He commends tamponing with moderately wide strips of iodoform gauze, without raw edges, through the Voltolini speculum, packing the whole cavity loosely but filling it up to the surface of the brain. The tampon is then held in place with forceps while the speculum is withdrawn, and the external wound is likewise packed with iodoform gauze. Nothing is done blindly. The edema in the brain rapidly subsides and, when the gauze

is changed the second or third day, the cavity is found entirely empty as a rule when examined anew with speculum and forehead light, the patient seated. If pus still lurks in any crevice, this is remedied now. The speculum tamponade is continued until the cavity is covered with healthy young cells; then a rubber drain may be used. This stimulates granulation at this stage. When the encephalitic process is spreading, vaccines or antiserums or other general measures may prove useful adjuvants.

**Recurrence After Operations for Gallstones.** — Liek has operated in 106 of 282 gallstone cases in private practice in twelve years, and 32 per cent. of the 75 traced to date have had recurrence of symptoms, sometimes very severe. One woman of 60 died with symptoms of cholangitis eighteen months after smooth recovery. There was recurrence in 5 cases in which, besides the ectomy and choledochotomy, the hepatic duct had been drained. In one case the common bile duct had shriveled for a stretch of 1.5 cm., obliterating the lumen. This segment was resected and a drain inserted for a few days. There has been no further disturbance since. Such a strictured segment might well explain some of the recurrences ascribed to cholangitis after removal of the gallbladder. Kehr found a stricture of this kind in only 6 of his thousands of gallstone operations, and corrected it by an operation in 5 of them. In Liek's 4 other cases, conditions were not so clear. Distention of the gallbladder without calculi production may have been responsible for the disturbances in certain cases in which after several failures, complete recovery followed the making of an extensive communication between the common bile duct and the duodenum, adhesions having evidently mechanically impeded the flow of bile. To avoid the formation of bands he advises to cut the cystic duct first. This leaves the gallbladder adherent by a strip of connective tissue covered with peritoneum and containing the cystic artery. This bridge is ligated and cut loose from the gallbladder close to its surface. We thus have a broad, well nourished flap of peritoneum which is brought down over the stump of the cystic duct and fastened low down to roof it over completely. Cutting the duct before the artery has several other advantages.

**Operative Versus Roentgen-Ray Treatment of Exophthalmic Goiter.**—Liek remarks that surgery is losing some of its domain and it has to fight to retain other portions. Surgeons have to admit now, he says, that in the great field of surgical tuberculosis, light and air, sunshine and the arc and roentgen rays accomplish more and better results than the knife and the chisel. But he devotes nearly 100 pages to presentation of data which apparently establish that surgery still holds its own and will continue to hold it against roentgenotherapy so far as exophthalmic goiter is concerned. He compares a series of 100 operative cases in his private practice with 100 similar cases recently reported by Nordentoft and Blume in which roentgenotherapy instead of the knife was used. The ultimate results, he asserts, are all in favor of surgical treatment; only when this fails, should roentgen exposures be considered, and in that case, besides the thyroid, the thymus and ovaries should be irradiated. He presents arguments to demonstrate that exophthalmic goiter is not a disease of the thyroid but of the entire endocrine system, including the brain, which he regards as an important element in this system. The brain is the organ primarily involved in exophthalmic goiter, that is, the central nervous system. This is involved both functionally and as a gland with an internal secretion. He cites a number of striking cases in which exophthalmic goiter developed in direct connection with sorrow or financial disaster or grief at treachery or a fright. It may subside spontaneously or under internal measures, but if not, and in the progressive forms, he says, the most effectual and durable treatment to date is extensive bilateral resection of the thyroid, with ligation of the four main arteries. During and after the operation the morbidly excited and excitable nervous system must be watched over with extreme solicitude. In all the severer cases the operation should be done within the first six months. Extremely intense nervous features and hysteria contraindicate surgical measures. The advantages of thymectomy are still problematical, and in any event do not compensate for the danger.

**Uterine Myomas with Severe Anemia.** — Senge has been gratified with the constant success of deep roentgen-ray treatment of uterine myomas and metropathies; it never failed him but once. At the same time, he still prefers operative measures when the patient is extremely anemic, always avoiding general anesthesia in these cases.

**Duodenal Ulcers.** — Schmidt reviews twenty-six cases of duodenal ulcer given operative treatment in Barth's service during a recent ten-year period. In about half these cases perforation had been the first symptom. In four cases the patients had long been under internal treatment for supposed gastric ulcer, and in ten other nonperforated cases there was a history of stomach disturbances for years, months or weeks. He emphasizes the advantages of resection; if this is impossible, he advises closing the pylorus with a strip of fascia or the ligamentum teres, with a Petersen gastro-enterostomy. Dietetic after-treatment is indispensable.

**Fracture of the Base of the Skull.** — Kulcke reports two operative cases. The interval from the trauma had been eleven to fifteen days, and both patients had acute otitis media, complicated in one case with peripheral facial paralysis and in the other with fever. The functions of the labyrinth seemed to be intact, as also of the vestibular nerve. Roentgen-ray findings were negative or dubious. There had been bleeding from the ear at the accident in both cases, and the circumstances indicated that the focus could be reached by incision of the antrum. This proved to be the case, and a complete cure followed.

## Medizinische Klinik, Berlin

Sept. 11, 1921, **17**, No. 37

*What Fractures Can Be Treated at Home? C. Ewald.—p. 1105.
*Foot-and-Mouth-Disease in Man. A. Hittmair.—p. 1108.
*Accidental Murmurs and Hypotonia of the Heart. G. Zuelzer.—p. 1111.
*Pylephlebitis. W. Grönning.—p. 1113.
*Diabetic Cataract. W. Lippmann.—p. 1115.
Pregnancy After Severing Both Tubes. Hellendall.—p. 1116.
*The Meinicke Serologic Test. Epstein and Paul.—p. 1118.
Ear Disease and the Practitioner. K. Grahe.—p. 1122. Cont'n.

**What Fractures Can Be Treated at Home?**—Ewald goes through the whole list of possible fractures, describing the measures required for each. Those in which roentgen examination and institutional treatment can usually be dispensed with include simple fracture and bullet wounds of the skull; fracture of a vertebra without injury of the cord; fracture of the pelvis, of the clavicle, of joints, of the upper end of the humerus, and of the ulna alone. Of course complications alter the indications. Fractures in children seldom require hospital treatment, as also infraction of the bones of the forearm, especially of the radius. Fracture of the neck of the femur is particularly amenable to home treatment, but he warns for the necessity of care to prevent shortening of the limb in bed. As the patient sits up in bed, he is liable to slide down in the bed. His trunk thus slides farther down in the bed while the weight of the thigh and leg and the friction hold the limb in its place. The weight of the trunk bears down on the hip joint and the soft callus yields and flattens out. This can be warded off by keeping the trunk more horizontal, and having the knees supported by a high triangular bolster. This opposes effectual resistance to any sliding down of the trunk. The knee must be well flexed so that the patella faces upward. When the shoulders are raised, the bolster under the knees must be made higher. He should stay in bed for three months; Ewald declares that the danger of pneumonia is exaggerated. If allowed to get up before this, he advises to have the hip joint flexed at a right angle, the knees closed, the patella facing upward, and both knees held on an exactly symmetrical line. The injured limb must not have any weight borne on it. While in bed, the legs must be flexed and spread apart to prevent coxa vara, and the patient must be instructed to innervate the quadriceps from the very first day on, and in the third or fourth week to extend the knee, that is, to lift up the leg from the inclined plane into the air.

**Foot-and-Mouth Disease in Man.**—Hittmair was impressed with the intense salivation in his three cases, and with the changes in the blood. The latter may have differential value.

The erythrocytes ran up to 6,350,000 in one case and to 7,100,000 in another, the hemoglobin to 119 and 107 per cent.; the leukocytes to 14,000 and 11,500, with 35 and 35.7 per cent. lymphocytes, and 2.6 and 2.3 per cent. eosinophils.

**Accidental Heart Murmurs from Hypotonia of the Heart.**—Zuelzer expatiates on the value of the information to be derived from the fact that the systolic murmur heard on reclining disappears as the subject stands. When one is reclining, the muscles are relaxed, including the heart muscle. This hypotonia of all the muscles causes a weakened heart muscle to drop below the level at which effectual systole is possible. As the muscles are tautened as one stands up, the heart feels the tonic stimulus and functions better, and the systolic murmur disappears. It may disappear likewise when the heart is strengthened by any means. Zuelzer declares that the whole subject of accidental heart murmurs demands revision. The above explanation fits all cases in which the systolic murmur is heard only during reclining or is strongest then. All other explanations that have been advanced can be discarded. The hypotonia of the heart is generally accompanied with vasomotor overexcitability. Anemia alone is not capable of inducing this accidental murmur, but it is common with anemia from constitutional inferiority. One vigorous man recently lost so much blood from hemorrhoidal hemorrhages that the hemoglobin was reduced to 35 per cent., yet there never was a systolic murmur in any position. On the other hand, this conception of myasthenia cordis from weakness, from toxic influences, from the effects of an acute or chronic infectious process anywhere in the body readily explains the cases encountered in such large numbers now, evidently an aftermath of the influenza epidemic. The conception has the further advantage of pointing the way to effectual treatment.

**Pylephlebitis.**—Grönning advocates more active measures against an inflammatory process in the portal vein, the necropsy findings in the three cases he reports showing that operative intervention would not be particularly difficult. In two of the cases conditions would have been favorable for ligation of the ileocolic vein, and in one case he applied this measure. Braun has done this successfully in two cases, ligating the vein just before it enters the superior mesenteric vein. The symptoms were high fever with sudden onset, severe chills, fluctuating slight jaundice, the liver tender, with, in one case, pains in the stomach and vomiting, and in another enlargement of the liver and spleen, high leukocytosis, and pains in the right side of the chest. Appendicitis had evidently been a cooperating factor.

**Diabetic Cataract.**—Lippmann has operated for cataract in 53 diabetics over 40 and 10 under 40. Complications developed in 6.06 per cent. His experience confirms the necessity for refraining from the operation until the urine is free from acetone. Of course any preexisting retrobulbar neuritis or retinitis will modify the prognosis and the outcome.

**The Meinicke Test.**—Epstein and Paul report the application of the third modification of the Meinicke serologic test to 1,100 patients. It proved at least as reliable as the Wassermann test, and has a number of advantages over the latter, they add.

## Wiener klinische Wochenschrift, Vienna

Aug. 18, 1921, **34**, No. 33

Rennin Action of Duodenal Secretion. M. Leist.—p. 400.
*Acute Gastric and Intestinal Hemorrhage. H. Finsterer.—p. 402.
Hematologic and Serologic Investigations in Echinococcus Patients. W. Pewny.—p. 402.
Hemeralopia as a Prognostic Symptom in Glaucoma. Blatt.—p. 403.
Changes in Buccal Mucosa After Vaccination. Preisich.—p. 403.
Reposition of Internal Hemorrhoids. A. Hinterberger.—p. 404.
Interim Treatment of Sanatorium Candidates. Ladek.—p. 405. Conc'n.

**Surgical Treatment of Acute Gastric or Duodenal Hemorrhage.**—Finsterer has operated in 40 cases of acute hemorrhage in the digestive tract and saved all but 10. With duodenal bleeding ulcer, gastro-enterostomy, ligation of the pylorus and compression of the bleeding area with a tampon are the routine procedures, and 6 of 10 in this group were cured; 2 others were referred to the surgeon too late; there had been perforation for ten hours in the third, and the fourth death he ascribes to not having the tamponing done firm enough. Extensive resection was done in 9 gastric ulcer cases and in 16 duodenal ulcer cases, with recovery of 22, and 3 deaths. In one of the fatal cases the hemorrhage had been continuing for seven days, and no pulse could be detected except in the carotid. In the second fatal case the man was a tabetic in cachexia. The third fatality was from diabetic coma. The mortality from extremely severe hemorrhage in the last 16 cases was thus 6 per cent. while the mortality in 155 ordinary ulcer cases was 4.5 per cent., so that resection with the gravest hemorrhage is but little more dangerous than an ordinary resection operation for ulcer. He advises to operate always in local anesthesia, and to beware of morphin. With severe collapse, ether by the drop; with existing bronchitis, ether by the vein instead of inhalation. The acute anemia has to be combated; in one case he had to have artificial respiration kept up for an hour and a half.

## Zentralblatt für Gynäkologie, Leipzig

Aug. 20. 1921, **45**, No. 33

*Vaginal Secretion in Differential Diagnosis. O. Wolfring.—p. 1173.
*Combined Radiotherapy of Carcinoma of the Uterus. I. Amreich.—p. 1177.
Histologic Nature of Ovarian Hemorrhage. P. Lindig.—p. 1182.
Isolated Torsion of Tube in Eighth Month of Pregnancy. A. H. Hofmann.—p. 1188.
The Temporary Sterilization of Women. A. Mülberger.—p. 1191.

**Significance of the Vaginal Secretion in the Differential Diagnosis of Acute Appendicitis and Acute Salpingitis.**—Wolfring states that, in the etiology of acute salpingitis, the blood stream is so rarely the route of infection that, in general practice, if the seat of an affection is on the right side and the bacterioscopic findings in the urethra, vagina and cervix are of the normal type, appendicitis rather than salpingitis is to be thought of. He emphasizes that, in general, the result of the bacterioscopic examination of the vaginal secretion has marked value in the diagnosis of abdominal affections.

**Combination Radium and Roentgen Treatment of Carcinoma of the Uterus.**—Amreich gives a survey of the results of this treatment as used in the First University Women's Hospital of Vienna in 1919 and 1920. He also describes the differences between their technic and that of Seitz and Wintz of Erlangen. They used a focal skin distance of 22 cm., 1 cm. less than that used by Seitz and Wintz. In applying irradiation, they use a localizing device which permits an exact centering of the tube and the exact measurement of the distance of the carcinoma area from the point of entry of the rays. They can thus determine what percentage of the surface dosage in a given case reaches the carcinoma, and how many fields must be irradiated in order to reach the carcinoma region with a carcinoma dosage. The results were not so unfavorable, especially when it is considered that they were dealing, in the main, with inoperable cases that would otherwise have been beyond all aid. It is emphasized that the cures cannot as yet be regarded as permanent, as sufficient time has not elapsed; but the women are without subjective symptoms, have increased in weight, and no evidence of the presence of a carcinoma can be demonstrated by inspection, manual exploration or examination of excised tissues.

## Gann, Tokyo

**August**, 1921, **15**, No. 3. Paging refers to English summaries.

*Transplantation of Cancer. M. Nagayo and H. Wago.—p. 9.
*Cancer Grafting and the Seasons. H. Wago.—p. 20.
*Intestinal Cancer and Parasites' Ova. Y. Kazama.—p. 22.
*Statistical Observations on Cancer. T. Harada.—p. 24.

**Interspecies Transplantation of Carcinoma.**—Nagayo and Wago inoculated dogs and rabbits with tissue from human gastric cancer. They also experimented with mouse carcinoma transplanted into fifty-six albino rats, with seventy-six controls, and rat carcinoma in sixty-three white mice and fifty-eight controls. The injections were made in the mesenteric vein and the liver examined, or into the vitreous body or subcutaneously. In some of the experiments the animals were treated, before or after, with serum from the species yielding the cancer. Numerous photomicrograms are reproduced. The final conclusion is favorable to the assumption that it may be possible, by modifying the conditions in the

recipient, to transplant certain heterogenous cancers to some degree. By the fifth week the microscopic findings were positive in 7.14 per cent. and 2.44 per cent. in the serum treated animals.

**Transplanting of Cancers and the Seasons.**—Wago relates that in transplanting mouse and rat carcinoma through sixteen generations during the year (500 white mice and 150 white rats) the grafts were successful in 100 per cent. during March to June and also December, but in the other months only in from 80 to 90 per cent.

**Intestinal Cancer in Relation to Schistosomiasis.**—Kazama's research demonstrated that intestinal cancer seemed to be more prevalent than elsewhere in the regions infested with the Asiatic blood fluke. In nine cases of intestinal cancer he found old ova in the neoplasm in every instance, especially at the margin of the growth. The mechanical and toxic injury from them may have set up the irritation inviting the malignant disease. The Japanese schistosoma lives in the mesenteric veins.

**Cancer in Japan.**—Judging from the necropsy findings at the Naval Medical Academy in Tokyo, the cancer death rate seems higher than that of Europe, and cancer affects men more than women. The age at outset is mostly 50 to 60; next, 40 to 50. Harada adds that cancer in the poor rarely develops metastasis.

## Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 20, 1921, **2**, No. 8

*Heredity and Selection. G. P. Frets.—p. 956.
Classification of Carcinoid Tumors in Small Intestine and Appendix. G. O. E. Lignac.—p. 968.
The Teaching of Ophthalmology in Netherlands Indies. A. de Waart.—p. 974.
Some Old and New Medical Journals. W. S. Stekhoven.—p. 999.

**Heredity and Selection.**—Frets discusses the influence of selection on the inheritance of properties. His research included measurement of the heads of 214 parent couples and of their children, to a total of 849. The charts show that the heads of the children averaged proportionately to the heads of their parents. Although the influence of Mendel's laws is apparent, yet multiple factors and especially selection, determine the outcome. In the inheritance of disease, he remarks, the assumption that the children either have the disease or do not have it, is untenable. They may have it in a very mild form, and the question then would be whether the third generation would have it likewise in a mild form. He thinks there is an interesting field for investigation in the hereditary transmission of properties with slight differences.

Aug. 27, 1921, **2**, No. 9

*Cancer Metastasis in Bones. H. T. Deelman.—p. 1048.
*Migraine and Anaphylaxis. H. A. Lubbers.—p. 1073.

**Metastatic Cancer in Bone.**—This is a continuation of Deelman's research on metastasis of malignant disease. His previous report dealt with metastasis in lung and spleen. He here analyzes the findings in twenty-seven cases with the primary cancer in stomach, bronchus, kidney, breast, prostate, bladder, pancreas or bowel. The different types of the bone metastasis are shown in four photomicrograms.

**Migraine and Anaphylaxis.**—Lubbers gives an oversight of what has been written on this subject of late, and describes a case of migraine in which he told the woman to keep a strict record of all she ate and drank. Comparing her records showed that the migraine occurred only when she had eaten beans. The number of leukocytes declined slightly within half an hour after test ingestion of beans, and the migraine developed eight hours after the meal. Skin tests were negative, but preventive ingestion of 0.5 gm. of peptone before eating the beans warded off the attack of migraine, although she felt chilly and drowsy. As the commercial peptone is made from a wide variety of proteins, it is not surprising that among them is the one that corresponds to the migraine-producing element in the beans.

Sept. 3, 1921, **2**, No. 10

*Treatment of Asthma on Another Basis. W. S. von Leeuwen and H. Varekamp.—p. 1152.
*The Calcium Factor in Spasmophilia. P. van Paassen.—p. 1162.
Typhoid Simulating Appendicitis. J. P. Hofstee.—p. 1171.
*History of Dentistry. G. H. Bisseling.—p. 1174.

**Tuberculin Treatment of Asthma and Hay-Fever.**—Van Leeuwen insists that as it seems to be impossible to discover in 75 per cent. of the cases the special protein causing the asthma, the next best thing is to apply measures to reduce the susceptibility. A purin-free diet and large doses of calcium chlorid are useful in this line, but still more effectual is treatment with small doses of tuberculin. Among the reasons which led to trials of tuberculin was the discovery that the persons who displayed an intense reaction to foreign protein always reacted to the skin tuberculin test. He also noted that a hay-fever patient found her symptoms very much improved for two days after a diagnostic tuberculin test. He theorized in consequence that the acute attack of asthma and hay-fever is an allergic reaction, like the anaphylactic reaction, although not identical with it. The condition in the human body which renders it sensitive to tuberculin is at the same time the cause for an abnormal predisposition to allergic reactions in general, and thus to asthma and hay-fever. By injecting small doses of tuberculin we reduce the susceptibility to tuberculosis and also to allergic reactions in general.

**Calcium Concentration in Spasmophilia.**—Van Paassen's study of this subject has apparently demonstrated that it is the free calcium ions which are important in the pathogenesis of tetany, not the total calcium.

**History of Dentistry.**—Bisseling traces the history of dentistry through classic literature and back to the first prehistoric mother who pulled out her child's first loose "milk tooth."

## Ugeskrift for Læger, Copenhagen

Sept. 1, 1921, **83**, No. 35

Experiences with Nirvanol. C. Geill.—p. 1147.

Sept. 15, 1921, **83**, No. 37

*Motor Functioning of the Stomach After Contrast Meal. O. Wissing.—p. 1207.
*Poisoning from Acetylene. S. Pontopiddan.—p. 1222.
Chronic Tonsillitis Simulating Pulmonary Tuberculosis. G. E. Permin.—p. 1224.

**Motor Functioning of the Stomach After the Contrast Meal.**—Wissing had twenty healthy persons take the contrast meal, each four times, with a week's interval. The stomach emptied itself in from two to four hours in almost all of them, but in two not until after four to five hours, and in one not until the fifth hour. Extremely few of his 217 patients with known stomach disease retained the food in the stomach for six hours; a five hour retention must be regarded as a sign of motor insufficiency. He compared further the retention after the contrast meal with the retention after an ordinary Bourget-Faber test meal, and gives the findings in the various groups of different pathologic conditions in the stomach and duodenum. The clinical test meal is a more sensitive index of the motor functioning than the contrast meal, as there was retention with the former far more frequently than with the latter, even when the roentgen examination followed in five hours. The lack of concordance between the two was shown particularly in the fact that often the same patient did not show the same degree of retention with the two. The reason for this different behavior is a mystery. A six hour test meal retention was found much more frequently than a five hour contrast meal retention. Most instructive is the combination of first one and then the other, as they supplement each other.

**Acetylene Poisoning.**—The symptoms and circumstances indicated phosphoretted hydrogen poisoning in the young mechanic who had been using a blow-flame of oxygen and acetylene. Acetylene gas is supposed to be harmless when pure, but it often contains phosphoretted hydrogen, and the symptoms presented by the young man indicated poisoning with this substance. They included vomiting, headache, dizziness, insomnia, paresthesias and nervousness and slight jaundice. The importance is obvious of detecting this poisoning in time to ward off serious injury of parenchymatous organs. Harbitz states that a few tenths per thousand of phosphoretted hydrogen are enough to cause fatal poisoning, and the acetylene gas in common use frequently contains it. (The Danish term used is *fosforbrinteforgiftning.*)